

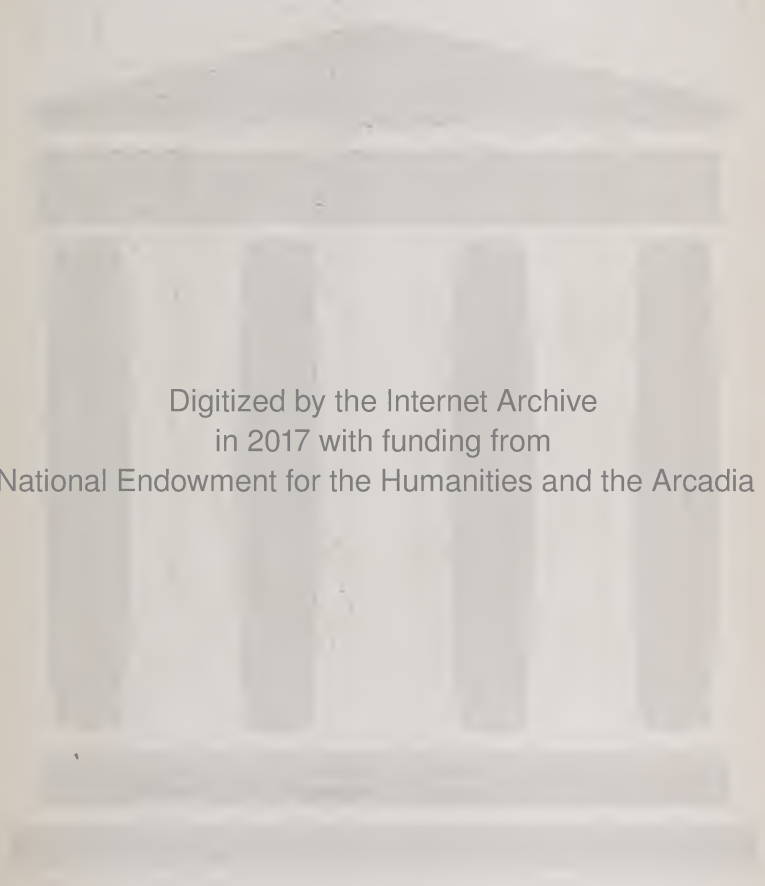
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WASHINGTON MEDICAL ANNALS

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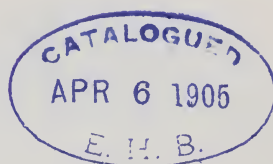
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BOSTON MEDICAL
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LARYNGITIS HYPOGLOTTICA ACUTA.*

BY CHARLES W. RICHARDSON, M. D.,

Washington, D. C.

There has been no subject in the range of medicine to which I direct my attention that has been so interesting a study to me as that known as laryngitis hypoglottica. This affection occurs in adults as well as in children, but it is rather to the condition as affecting child life that I would in particular direct your attention. Laryngitis hypoglottica is used to designate that more intense form of laryngeal inflammation in which the submucous structures of the larynx participate most actively in the morbid change; frequently showing infiltration, producing swelling into the lumen of the larynx. Those regions of the larynx rich in submucous connective tissue, as the ary-epiglottidean folds, the false chords, and in particular the immediate subchordal portion of the larynx are the areas most frequently affected. The peculiar tendency of this disease to develop the subchordal infiltration with the accompanying impairment of the respiration makes it not only a pathological condition of great interest, but also alarming in its clinical features, as well as fraught with danger to the life of the affected one. The hypoglottic form of laryngitis as affecting children rarely becomes of much moment when affecting the submucous tissue of the suprachordal portion of the larynx. It is only when the condition affects the loose alveolar tissues in the subchordal portion of the larynx that our anxiety and fears become aroused. From this fact I have always been inclined to accept the French designation, Laryngitis submucosa subchordalis, as the more appropriate term. The etiological factors, which seem to bring about this condition, are those atmospheric changes that cause acute laryngitis; the acute exanthemata, especially

* Read before the Medical Society of the District of Columbia, January 13, 1904.

measles ; influenza ; foreign bodies ; chemical fumes ; inhalation of steam, hot air and smoke. The predisposing cause seems to be that condition described by Potain, and known as Lymphathism. Males seem more frequently to be affected than females.

The pathological changes are characterized by intense inflammatory redness of the affected portion of the larynx, and partial or diffuse, either unilateral or bilateral swelling of the affected portion of the mucous membrane. The effusion into the submucosa seems to be of a highly coagulable nature. It is rarely that the whole larynx is affected.

Symptoms.—The acute hypoglottic type appears primarily under the usual symptoms of a severe acute laryngitis. There is more or less disturbance of the voice, croupy cough, and slight stridulous breathing. In children there is slight acceleration of the pulse, increase frequently of the respiration and a moderate rise in the temperature. As the case progresses the breathing becomes embarrassed and the stridor more pronounced. In the suprachordal cases the symptoms rarely go beyond this point of moderate embarrassment of the respiration and audible in- and expiratory murmur. In those cases, though attended with subglottic infiltration, the breathing becomes more and more difficult, inspiration and the expiratory stridor more piping and higher pitched, the cough more frequent and of a more metallic character. All the extraordinary muscles of respiration are called into play, and there is a sinking in of the epigastrium and at the suprasternal notch during inspiration. The child's anxiety and distress are manifested in the usual manner. Cyanosis rapidly supervenes and the pulse becomes small, rapid and thready. Unless relief is afforded at this stage through subsidence of the swelling by natural resolution or through mechanical means, the progress is to a fatal termination.

The laryngeal picture presented, when such a view can be obtained, varies according to the affected area. In the suprachordal type there is an intense deep redness of the mucosa, while when the false chords are the seat of infiltration, they bulge out so as to nearly or quite overlap the true chords ; or when the ary-epiglottidean folds are the seats of the inflammatory activity they show a greater or less increase in dimensions. In the subchordal type the picture is even more strikingly characteristic. The suprachordal laryngeal mucosa seems to participate but

slightly in the pathological change when the subchordal mucosa is involved. Often the chords themselves only show a slight pinkish tinge. On a deep inspiration during inspection the characteristic lesion will show up as two intensely red folds of mucosa, apparently immediately beneath the vocal bands, which are thoroughly immobile during inspiration and expiration. These folds of mucosa vary in size from a slight raising of the mucous membrane, hardly discernible, to masses that almost or quite come in apposition in the middle line. I have, in older children, several times been able to obtain most perfect pictures of the above mentioned condition.

The differential diagnosis between this condition and laryngeal diphtheria is one that cannot always be immediately made. There are slight shades in the subjective symptoms, but they are not constant. In diphtheria the voice is more apt to be very hoarse or aphonic than in hypoglottic laryngitis. In at least six cases I have heard the voice almost normal in hypoglottic laryngitis. In diphtheria the obstruction to breathing is more frequently attended with paroxysms of intense dyspnoea, followed by periods of easier respiration. In hypoglottic laryngitis the breathing is not paroxysmally worse, but gradually and progressively grows worse. Laryngeal examination, if possible, shows the characteristic deposit of diphtheria in the one form, or the presence of the subglottic swelling in the other. The presence of pharyngeal deposits, when a view cannot be obtained by the laryngeal examination, simplifies the differentiation. The result of a culture will demonstrate the absence or presence of the Klebs-Loeffler bacillus.

Treatment.—Treatment consists in the administration of expectorants, free purgation, the application of ice bag externally, the generation of steam in the room, and the local application or spraying into the larynx of a mild solution of silver one per cent. and suprarenal extract. Should the embarrassment of respiration become great, or the child show exhaustion from the prolonged effort of breathing, intubation or tracheotomy becomes necessary.

It has been my experience to meet with quite a number of these cases, and in closing my paper I will give briefly the history of several, divided arbitrarily into types, enumerating one of each kind.

Case I. A six year old child, not requiring mechanical inter-

ference, referred to me by Dr. H. B. Deale. The boy had had an ordinary acute laryngitis which had been attended with slight stridulous breathing. On the third day of the invasion, as the stridor had become worse instead of better, he was referred to me for opinion. The boy had no temperature. His general condition was excellent. He had a high-pitched inspiratory and expiratory stridor, which was distinctly audible in quiet respiration forty feet distant. Cough distinctly croupy. Voice normal. Laryngeal inspection gave the most perfect picture of subglottic swelling I have ever seen. Several applications of silver resulted in perfect resolution.

Case II. An infant child, not requiring mechanical relief. Seen in consultation with Dr. S. S. Adams. This infant had been sick for several days with a laryngitis and continuous stridor. The stridor had persisted for the twenty-four hours preceding the consultation, increasing slightly during the day over that of the night. The voice, as evidenced by its baby talk and cry, was perfectly clear. Cough croupy. Slight temperature. Inspiratory and expiratory stridor quite marked. Child bright and playful. No cyanosis or other evidence of want of air. Pharynx clear. No laryngeal examination possible. Usual treatment, with complete recovery in twenty-four hours. No culture made.

Case III. A seven-year old girl, requiring mechanical relief, to whom I was called by Dr. R. T. Holden. This girl had had measles. During the convalescence the hypoglottic condition developed. For several days the breathing had grown progressively worse. There was croupy cough and a clear voice. Breathing was very distressing, markedly embarrassed, with cyanosis. Epigastric suprasternal and supraclavicular sinking. Immediate intubation. Child extubated in four days. Recovery. Culture negative.

Case IV. An infant child, fourteen months old, with pronounced general symptoms and requiring mechanical relief. I was called to see the patient by Dr. Fry. The child had had an attack of influenza, which had been followed by the evidence of hypoglottic laryngitis. Two days before I saw the infant the invasion of the larynx had taken place. The day before, the breathing had been stridulous and had grown worse that evening. Dr. Bryan saw the case with Dr. Fry the evening of the second day, and suggested the external use of ice. The child, instead of improv-

ing during the night, steadily grew worse. At noon the next day, on account of Dr. Bryan's illness, I was called to see the little patient. The little fellow was very much exhausted by his laborious efforts at breathing. He was cyanosed. There was a high-pitched inspiratory and expiratory stridor, croupy cough, and a slightly hoarse cry. There was marked sinking in of epigastrium and suprasternal notch. The child was restless and showed all the evidences of one craving air. Temperature was 101.2, pulse 160, respiration 40. Intubation was immediately done. The temperature curve, as shown by the chart, ran rather a high course. The child was extubated and the tube introduced on three occasions. On the twelfth day the tube was coughed out, and did not require further introduction. The child made a perfect recovery. Culture negative.

Case V. A child of three years of age, demanding mechanical relief, with a fatal termination. I saw this child at the request of Dr. Mallan. It was after twelve at night that I was called to see the child with Dr. Mallan. The boy had been sick for several days with what appeared a simple laryngitis with slight audible respiration. During the twenty-four hours preceding my visit the breathing had become more and more labored. The child's condition demanded immediate relief, which was given through the introduction of an intubation tube. The voice was only slightly hoarse. In order to safeguard the child, antitoxin was also administered. Culture proved negative. Child died on the second day after intubation, from pneumonia.

Dr. Deale had seen two cases of the disease, within two weeks of each other. He was then unfamiliar with the affection, but recognized that he was not dealing with diphtheria. Dr. Richardson was called in consultation, and a perfect laryngeal image was obtained, which settled the diagnosis. Dr. Deale was much interested in the cases, and reported them to one of the local societies. The ground had been so thoroughly covered by Dr. Richardson that Dr. Deale had nothing to add. The subject was one with which every practitioner should be familiar.

Dr. S. S. Adams said that the history of a case which he had seen had just been given by Dr. Richardson. The child was taken ill on a Wednesday, and Dr. Adams saw it on the following Saturday. He made a diagnosis of acute laryngitis, and prescribed accordingly. The next morning, to his surprise, the patient was worse. There was great dyspnoea, and he thought that the child would die. There was no evidence of a membrane.

He left the house at noon, and received a telephone message at 6 o'clock that the patient was worse. He summoned Dr. Richardson, and together they went to the house. Dr. Adams had not, for several reasons, believed the case to be one of diphtheria. Dr. Richardson made a diagnosis of laryngitis hypoglottica, and relieved the patient by appropriate treatment.

The differential diagnosis in these cases was very important, particularly at this season of the year. "False croup" was not infrequently mistaken for diphtheria. It would have been a serious thing had he pronounced this case one of diphtheria, as it happened in a boarding house. Laryngitis hypoglottica was a rare affection. Furthermore, as a point in the differential diagnosis it should be remembered that an attack of "false croup" could be cut short by the administration of an emetic, whereas these cases were not favorably affected by an emetic. This child had been given enough ipecac to cause two or three children to vomit, but there was no vomiting. Dr. Richardson suggested a bromide and the application of cold. Since then the child had had another attack, which was relieved by the same means, without calling in any physician.

Dr. Butler said that these cases were both rare and difficult of diagnosis. The diagnosis was especially difficult to make out in some cases before a bacteriological examination was made. Dr. Richardson had very clearly described the lesions. The affection was formerly classed as "stenosis of the larynx." He had seen a case in which the diagnosis was so difficult that intubation was performed under the belief that the case was one of laryngeal diphtheria. It should be remembered that all cases of laryngeal obstruction were not due, either to "false croup" or a false membrane. Ice and adrenalin in solution were useful in treatment, but unless soon relieved intubation was indicated.

Dr. Richardson, in closing, said that he had little to add, except that these cases occurred in the practice of any physician who had much to do with children. He had seen cases where anyone would have been excusable for making a mistake in diagnosis. In one such case he gave antitoxin to safeguard the patient. He did not believe that the case was one of diphtheria, but gave the antitoxin at the earnest solicitation of the physician and family.

ACUTE LEPTOMENINGITIS.*

By GEO. N. ACKER, A. M., M. D.,

Washington, D. C.

The specimen consists of the brain which weighed $38\frac{1}{2}$ ounces. It shows a thick deposit of yellowish lymph over most of the cerebrum; none in the occipital region; and there is none over the cerebellum, pons or medulla oblongata.

Guy Briscoe, colored, age 3 years, was admitted to Children's Hospital, Washington, December 10, 1903. Family history, negative. His birth was normal and he was breast fed. Has had frequent attacks of bronchitis and intestinal indigestion. In July, 1903, he was under treatment at this hospital for rickets and gastro-enteritis.

A month ago he developed a cough which steadily became worse. He had some fever. At night, he perspired freely and later he did not sleep well. His appetite was not good and he frequently vomited his food.

When admitted to the hospital he was dull and apathetic; of average height; body fairly well developed; head too large in proportion to body; adipose tissue above the normal. The epiphyses of the long bones were greatly enlarged; ribs "beaded;" skull enlarged and square shaped; anterior fontanelle not closed; skin, glandular and circulatory systems normal; teeth irregular and "honey combed;" tongue large and flabby; abdomen distended. Chest, "pigeon breasted;" large and small moist râles heard all over chest; breathing rough; frequent cough.

He was put to bed, given milk diet and T. P. R. He coughed considerably; respiration labored; temperature 103, 102.4, and 100. December 11th, difficulty in breathing; very fretful; slept poorly. Gave paregoric. 12th. Temperature not above 99.6; still coughed a great deal, but slept much better. 13th. Gave ammonium carbonate.

14th to 22d. Temperature seldom above normal. Regular diet ordered Dec. 20. Cough less frequent.

22d to 24th. Temperature had been about 101.5 for the last two days. Cough less severe.

26th. Temperature went up to 105.6 in the morning. He be-

* Reported with specimen to the Medical Society of the District of Columbia, January 20, 1904.

came nauseated and vomited food mixed with much mucus. Was again given milk diet. About 2 P. M. had a slight convulsion, arms chiefly affected. Respiration became very difficult. About 4 o'clock had another convulsion. Laryngeal spasms soon followed; had dyspnoea, and seemed to be in great distress. Gave apomorphine hypodermatically, grain 1-16, with strychnia sulphate, 1-150. Convulsions and dyspnoea soon disappeared and he fell into a deep sleep.

27th. Temperature ranged from 102.6 to 104.2; pulse full and strong. Vomited considerably.

28th. Temperature 102.8 to 104.5; pulse 142 to 146; respiration 60 to 62.

29th. Had several convulsions; arms rigid; extensor muscles chiefly affected. Dyspnoea pronounced at times. He moaned a great deal but was unconscious. Temperature averaged 103.

30th. Again several convulsions; dyspnoea marked; at times muttering delirium.

31st. Pulse weaker. Gave strychnia sulphate 1-150 and whiskey one drachm every three hours. Convulsions continued. Temperature 105.3. Sponge bath.

January 1, 1904. Sponge baths during the night. Temperature fell after each bath but rose to 105 in a short while in every instance. Severe convulsions; tincture of digitalis one-fourth drop every three hours; calomel 1-10 grain every hour until bowels moved.

2d. Sponge baths; temperature 106.2; pulse 160 to 170. Respirations rapid and shallow.

3d. Sponge baths discontinued; temperature above 105; pulse could not be counted. Convulsions less severe. Coma.

4th. Pulse rapid and feeble; temperature 106.5; no convulsions; profound coma; died.

The autopsy, performed by Dr. A. Hrdlicka, showed all the organs normal except the brain; the vessels were engorged and surface of brain covered with a greenish-yellow exudate.

CHRONIC PACHYMEINGITIS.*

By D. PERCY HICKLING, M. D.,

Washington, D. C.

The specimen consists of the left half of the brain, showing chronic pachymeningitis; the dura is much thickened, in one place to *more than half an inch*; left cerebral convexity extensively destroyed and shreddy; many firm adhesions between dura and cerebrum. Microscopic examination by Dr. James Carroll, of the Army Medical Museum, showed only a chronic inflammation.

The specimen presented is probably the brain of S. G., a colored woman, age 55, who was admitted into the Washington Asylum Hospital, August 7, 1903. The records showing her condition when she was admitted, and also her previous history obtained at that time, appear to have been lost. According to the recollection of Dr. Kerns, one of the internes of the hospital, it would appear that she was slightly paralyzed in the right arm, and could not speak plainly; and had several convulsions while in the hospital. It would seem, however, that she improved somewhat, as on Oct. 14 she was sent from the hospital to the Almshouse, but was returned to the hospital the next day, as she had been found at 6 o'clock in the morning, by one of the attendants, in a convulsive seizure. She was totally unconscious when readmitted to the hospital, and the convulsions were continuous. At 1.15 P. M. she died without regaining consciousness.

The necroscopy was made by Dr. A. Hrdlicka. The skull was thick, but was not abnormal, and showed no sign of injury; left side of calvarium internally bluish; no adhesions of dura to the skull. Dura of right side of convexity was thickened uniformly to about twice that of the normal; no adhesions to the pia. On the left side adhesion of the dura to the pia began in the frontal region, and increased in thickness backward; the dura could be separated only by tearing the brain. Base of brain and the membranes were normal. Cerebro-spinal fluid, normal.

* Reported with specimen to the Medical Society of the District of Columbia, January 20, 1904.

PACHYMEINGITIS HEMORRHAGICA INTERNA,
FOLLOWING INJURY.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

The dura of the cerebral convexity, falx and tentorium show an extensive thick clot and membrane on each side, more especially the left, where they caused marked flattening of the convolutions.

From a colored man, age 55, laborer, who, while at work, in August, 1903, fell into a ditch 7 feet deep, striking on his head; when taken out, was conscious. He continued his work for about three months, namely until about Nov. 20; whether he made any complaint during these three months cannot be ascertained. Nov. 26 he complained of pain in the head and was unable to move his limbs; also of pain in the bladder and was unable to pass urine. Two weeks afterward he was admitted to the hospital; was then fairly nourished; his tongue coated; eyes congested; pulse weak; paralysis of limbs and incontinence of urine. While in the hospital his temperature ranged from 94 to 99.4, pulse 60 to 104, respirations 14 to 30; involuntary urination continued. Died 5 days after admission.

The very brief history seemed to point to a cerebral lesion and to be explained by the pachymeningitis which was found. It is a matter of regret that the detail of symptoms is not much fuller. All the thoracic and abdominal organs were normal except the urinary bladder, which was found thickened and contained thick, dark urine.

DISCUSSION OF SPECIMENS BY DRs. ACKER, HICKLING AND D. S. LAMB—MENINGITIS.

Dr. T. C. Smith said that it was needless to remark that all of these patients died. All these cases died; he had never seen one recover. The question was, why? The effusion was not enough to cause death; there was first a sthenic condition, and then asthenia and death. Did the shock, the temperature or the disturbance of circulation kill? Could we do nothing to save these patients' lives? We seemed to be at a standstill. Ergot was suggested a few years ago, but its use had been practically abandoned. There were possibilities in the line of surgery. Trephining might do good by relieving pressure and subsequent drainage might still further aid.

*Reported with specimen to the Medical Society of the District of Columbia, January 20, 1904.

Dr. Chappell suggested that Dr. Smith ought to be able to tell the younger members what to do. Dr. Chappell thought the general opinion was that tubercular meningitis was always fatal; from that due to other causes patients occasionally recovered. He was acquainted with a young man who had meningitis in childhood, but who was now in perfect health. He asked Dr. Acker at what stage the diagnosis had been made in the case reported by him. Pneumonia, typhoid, etc., were sometimes simulated early in the disease. The diagnosis was an easy matter after convulsions occurred. In the case reported by Dr. Acker strychnine was given after the first convulsion occurred. Why strychnine? Dr. Chappell asked for information on this point.

Dr. D. S. Lamb spoke with reference to Dr. Hickling's specimen. Although there had been no history of syphilis, it was hard to see how any other disease could cause such a great thickening, chronic in character. This suggested the question, Why do these patients with meningitis die? When the *dura* was affected the patients might recover from the acute condition, but chronic trouble always remained, and interference with the functions of the brain. On the other hand, most of the *pia* patients died. Here the temperature was continuously high, and this might be the cause of death, in conjunction with the toxin of the infectious germ present in every case of inflammation of the pia. A sudden infusion of infecting lymph might cause death from "paralysis of the brain."

Dr. Acker, referring to the specimen he had presented, said that while the exact form of meningitis was not known, he had believed it to be of the tubercular variety, but Dr. Hrdlicka, who performed the autopsy, thought otherwise. No bacteriological examination was made. The exudate was peculiar; he had never seen one just like it; it did not resemble a tubercular exudate.

He had seen cases recover from what was apparently tubercular meningitis. Holt and Jacobi cited like testimony. Dr. Acker had reported two such cases. When death occurred from involvement of the base of the brain, it was due to involvement of the 4th ventricle. The strychnine given in this case was as a tonic.

Dr. D. S. Lamb spoke with reference to the finding of a specific germ in these cases. Only one, the pneumococcus, had been found, and that when pneumonia was present. The meningococcus had been discovered in the cerebro-spinal form of the disease. In aural cases there had been found the streptococcus and staphylococcus. This seemed to cover the range of germs. Hence the outlook as to a complete understanding of the disease and a rational treatment did not appear to be very bright.

AN OLD FIBROID TUMOR—HYSTERECTOMY.*

By J. TABER JOHNSON, A. M., M. D., Ph. D.,

Washington, D. C.

Mrs. W., age 64, consulted a physician in Boston in 1878, 26 years ago. During all this time she has suffered from pain caused by the growing fibroid. There were the usual symptoms: pain, hemorrhage, feeling of distension and weight, and more or less interference with the functions of the heart, lungs, kidneys, bladder and rectum, due to the presence of the growth. During the first week in January, 1904, she came under the care of Dr. Wallace Johnson for bronchitis; he referred her to Dr. J. Taber Johnson, to whom she told a remarkable history. She had not lain down for ten years without the aid of at least six pillows to keep her in a semi-recumbent position. Yet she was active and vigorous. Operation was successfully performed ten days ago.

The unusual points about the case were the following: 1. The age of the patient, 64. As is generally known, these tumors are most frequent during the child-bearing period. 2. The age of the tumor, 26 to 30 years. The woman had been told that she could not possibly survive an operation, so she made her will, and had all arrangements made to take her home to Maine in a coffin. 3. The ease of the operation. There was not an adhesion, although several large abnormal vessels were encountered. 4. Just as soon as she came out from the ether, she insisted on taking her accustomed position on six pillows. She had her way, and Dr. Johnson expected trouble therefrom, but she made a good recovery. This would indicate that it may be possible, without detriment to patients, to allow them to assume this position after laparotomy, if they can breathe better and are more comfortable in this position. 5. At least a quart of blood drained from the tumor. A gallon or more of normal salt solution was left in the abdomen, partly to take the place of the lost blood.

Dr. Reyburn said with reference to the age of the growth, that he saw a patient in 1863 for uterine fibroid; she was living today, but was an invalid. Operation was never performed.

Dr. James Stuart mentioned the case of a mulatto woman, a virgin, 65 years old, who had recently died from a large fibroid

* Reported with specimen to the Medical Society of the District of Columbia, January 27, 1904.

tumor which caused obstruction of the bowels. He had attended her for the last two or three years of her life, and only toward the end did it give her much annoyance. She had carried the tumor many years.

Dr. I. S. Stone thought the sitting posture after laparotomy permissible, and, in some cases, advisable. As in Dr. Johnson's case, persons who have acquired the habit of resting propped up by pillows might be seriously embarrassed by being forced to assume the reclining posture. Then, too, there was less likelihood of the spread of infection in peritonitis when the patient was sitting up. The accidents which had happened during anesthesia when the patient was in the upright position were not altogether due to the position, but to other, and preventable, causes. In operations upon organs in the upper abdominal cavity it was sometimes necessary to elevate the patient's shoulders, and he had seen no bad effects from doing so.

Dr. J. Stuart said that the atrophied condition of the anterior abdominal wall due to long distension and the age of the patient, might explain why the stitches did not pull out in the case of Dr. Johnson's patient. The sitting position was safer in aged patients than in the young.

Dr. J. Ford Thompson said that he knew of several cases in which tumors were carried for more than twenty years, and what was more remarkable, in more than one of them the tumor spontaneously ceased to increase in size. The most remarkable of these cases was the following: About thirty years ago he was consulted by a woman who had a tumor which gave her much trouble. He advised operation. He did not see her again for a number of years, when he was called in to see her by Dr. Busey. She was a remarkable sight. The tumor was apparently three or four times the size of a child's head, and it was as hard as if frozen. Attempts to drain it by a trocar failed, as the instrument could not be inserted. He saw her about three years later in New York, boarding a car. The tumor was apparently no larger. Recently she came to his office to let him know how she had improved. To his amazement the tumor was not one-tenth of its original size, and she was comfortable and active. The case was, of course, a mere medical curiosity.

Dr. Johnson, in closing, said that we were taught in the books that these tumors might disappear at the menopause, and many patients deferred operation, looking forward to this happy termination of their sufferings, only to be disappointed. He had several times presented specimens here to show the fallacy of this idea. In rare instances, like that just mentioned, the growth did disappear, or at least ceased growing; but this was the great exception. Such cases were in line with the following: A man came home drunk and kicked his wife, who had a large fibroid, in the abdomen. She went to bed, had a mild attack of peri-

tonitis, and the tumor immediately began to diminish in size, and within a year it had almost entirely disappeared. This was another medical curiosity. Surgery afforded the only rational hope of relief. One could not afford to depend upon such chances as these.

SUBMAXILLARY SALIVARY CALCULUS.*

By S. R. KARPELES, M. D.,

Washington, D. C.

H. J., white, age 21, single, had been under treatment at the Columbian University Hospital for gonorrhoea from January 6 to 12, 1904. Just before he left the hospital a slight infection of the left submaxillary gland developed. A little pus could be milked from Wharton's duct. He returned to his home and the inflammation of the gland became progressively worse. January 16 I was asked to take care of the patient for a few days by Dr. Gibson. At this time, the left submaxillary gland was greatly swollen and indurated. The tongue was so large that articulation was nearly impossible and the pain was intense. An incision had been made anteriorly in the floor of the mouth a few days before, but no pus was evacuated. A small external incision over the gland had yielded a small quantity of pus at the time, but none subsequently. Two incisions were now made in the side of the tongue, causing free bleeding, but the attempt to reach pus by a puncture wound in the center of the floor of the mouth was a failure. An opiate was given for the intense pain. A slough that was present on the floor of the mouth was removed the next day and, with pressure, pus exuded from the wound, which was then probed. The probe went in toward the gland a distance of about three inches, through Wharton's duct; pus flowed more profusely. The orifice was enlarged and, while the tract was being irrigated, the calculus was expelled with considerable force. The calculus compares favorably in size with the four of a similar character, to be seen at the Army Medical Museum. Upon examination of the pus, no gonococci were seen. He made a good recovery.

* Reported, with specimen, to the Medical Society of the District of Columbia, January 27, 1904.

THE X-RAY IN PULMONARY TUBERCULOSIS.*

BY F. P. VALE, M. D.,

Washington, D. C.

Dr. Vale exhibited a case of pulmonary tuberculosis in which the physical signs were very slight, yet the x-ray negative showed the disease to be well advanced. He had frequently spoken of the value of the x-ray in the early diagnosis of this affection, and thought the opportunity of comparing the slight physical signs in this case with the x-ray negative, showing how extensive the disease actually was, might be of interest to some of the members. The patient had brought him a small quantity of frothy, blood-tinged expectoration, in which, after a rather long search, Dr. Vale had found tubercle bacilli. He called attention to the characteristic "stippled" appearance of the plates, and the very apparent deviation from normal they presented.

He also showed a plate, taken the day before, of a case in which the whole right side of the chest was almost opaque to the rays. This patient had been perfectly well, as far as he himself was aware, until ten days before, when he was confined to his room with what appeared to be an attack of grippe. A hemoptysis attracted attention to the lungs. The negative proved the disease much further advanced than one would suspect from the usual physical examination of the chest—though the physical signs in this case were so marked as to leave no question as to the nature of the affection. The sputum was loaded with tubercle bacilli.

Dr. S. S. Adams said that Dr. Vale had presented an interesting subject and one which should not pass without discussion. Dr. Adams was sorry that Dr. Vale had not exhibited the man whose case was diagnosticated by the plate, beyond question. Dr. Adams had had cases where the skiagraph showed nothing, and yet there was no doubt as to the presence of tuberculosis. He made it a habit to take these skiagraphs, but why his men at Children's Hospital had not found the areas of consolidation, he did not know.

In the case of the patient exhibited, Dr. Vale had said that the sputum was loaded with tubercle bacilli, and the plate showed

* Reported to the Medical Society of the District of Columbia, February 10, 1904.

that the whole of one lung was diseased; Dr. Adams, from his examination, was not prepared to admit that the man was so badly off. The trouble was at the apex, and not well marked; certainly the whole lung was not affected. The temperature, too, 98.7, did not indicate extensive disease. Like Dr. Marbury, he would prefer in this case to defer making a diagnosis until later.

Dr. Acker said that the patient had a marked lesion of the upper right lung; the lower part also showed some signs of disease. The left lung was involved, but to a less extent.

Dr. Chappell said that if the X-ray were to prove useful in making a diagnosis in the pre-tubercular stage, it would be a great boon. It was easy enough to make a diagnosis after the symptoms had become apparent, or on the appearance of tubercle bacilli in the sputum; but the disease often existed a long time before this. How valuable the rays would prove as an aid to diagnosis in the pre-tubercular stage remained yet to be seen. He was not very sanguine upon this point. The difficulties attending the making of the picture must be taken into consideration when estimating the value of the X-rays.

Dr. Vale said the remarks of the members who had examined the patient emphasized the point he wished to make, that the physical signs were so slight they might even escape notice entirely; yet, in fact, as clearly demonstrated by the X-ray examination, the lungs were extensively involved. The failure to obtain instructive negatives in the early stages of pulmonary tuberculosis at Children's Hospital, referred to by Dr. Adams, might be due to over-exposures. If, however, the lesions were advanced, there was no danger of blotting out the corresponding shadows in the negative. Dr. Vale used an exposure of 20 to 45 seconds, at two feet, while the patient held his breath.

If one waited until he found tubercle bacilli in the sputum, he would make a tardy diagnosis in many cases. The fluoroscopic evidences of early pulmonary tuberculosis were even more marked than afforded by the negative, though one supplemented the other, and both should be appealed to. The value of the X-ray in the early diagnosis of tuberculosis was first indicated by Berclère in Paris and Williams in this country, and was now universally recognized.

ANIMUM.*

BY JOSEPH T. HOWARD, M. D.,

Washington, D. C.

"God created man in His own Image. In the Image of God created He him, * * * and breathed into his nostrils the breath of life and man became a living soul."

"What a piece of work is man; how noble in reason; how infinite in faculties; in form and moving how express and admirable; in action how like an angel; in apprehension how like a god; the beauty of the world; the paragon of animals."

Without entering upon any metaphysical disquisition of the soul or undertaking an exegesis of the Platonic or Aristotelian philosophies, suffice it to state that the title of this paper is construed to embrace all the faculties of the mind, the image of the Creator, in whose form and likeness He first made man and so distinguished him from all other creatures, as He likewise made him to differ from them in body erect, majestic mien, and graceful form, with prehensile and other organs, possessing functions compatible with all the conditions of his environment upon earth where he was to have forever lived, moved, and had his being.

We cannot lift the veil that hides from our mental vision what, inferentially, must have been the transcendent grandeur, beauty and nobility of man in all the excellency of that pristine state, neither can we comprehend the order, felicity and perfection of that elysium, Eden, wherein the author of his being first placed him. But as "you may break, you may shatter the vase if you will, but the scent of the roses will hang 'round it still." So we, viewing this fallen creature, may discern lurking about the disjointed fragments of the once perfect vessel scintillations of the Creator's Image first grafted into it, for, notwithstanding the disobedience and the fall, the glory of that Image, so eloquently portrayed by the Avonian Bard, is there reflected still.

Then it is in his broken and fallen state that man presents himself to us a twofold being with double perceptive powers, somatic and psychical, the former dependent upon external excitement denominated nature, the latter upon internal impressions called soul, spirit, mind.

* Read before the Medical Society of the District of Columbia, January 20, 1904.

The seat of the soul has been the speculation of philosophers in all ages ; Descartes placed it in the pineal gland ; Empedocles in the blood ; Diogenes in the right ventricle of the heart ; Lancisi in the corpus callosum ; La Peyronie in the fornix, and Sömmerring in the fluids of the ventricles of the brain.

At the present time the recognized seat of the soul is the brain, and its appendages, the former of which in size is proportionately larger in man than in other animals.

As we are somewhat acquainted with the anatomy and functions of these commissures, convolutions, fissures, lobes and ventricles, and the nerves communicating with them, we may assume to survey the faculties propagated by and through these organs.

The development of the mind is primarily through the senses by which outside objects are impressed upon the sensorium. To this extent man does not differ from other animals, for all creatures see, feel, hear, taste and smell, but it is man only that perceives, comprehends, arbitrarily combines or links together ideas, classifies and memorizes them, refers them to reason, judgment and conscience, that still small voice which dictates to him how and when to act, or warns him what not to do. From these major faculties of the mind also spring all the tender emotions embodied in faith, hope, love and truth, that in themselves evince man's superiority above all other creatures.

"God made man upright, but he hath sought out many inventions," says Solomon. Most pre-eminent among these may be mentioned the establishment of government ; the development of civilization ; the formulation of science ; the creation of art ; and guided by the precepts of the gospel of the Son of God. Says another: "He has stayed the tide of depravity engendered by his somatic passions ; tamed the beastly and ferocious of his species, who were wont to feed upon each other's flesh, and taught them to manifest a due regard for the lives of their fellows ; to revere age, respect manhood, honor womanhood, educate their children, provide for the indigent sick and unfortunate, and in many other respects illustrate the attributes of the Image in whose form and likeness he was first made."

Such is a brief optimistic view of the development of the mind in its altruistic character in which it is ever tending to the original type ; the good, the beautiful and the true. But, unfortu-

nately, there is a somatic or pessimistic tendency of the mind that cannot be screened, in which it is wont to gravitate from the original type towards error, sin, vanity and vice, wherein it is influenced and fostered by the *ego*, undue pride, selfishness, and dominated by the baser passions, which stifle reason, override judgment, make dull the conscience, tincture virtue with vice, love with hatred or jealousy, truth with falsehood, all good with evil; excite envy, anger, avarice, scorn; vex the finer faculties, poison the imagination, trail the wings of fancy in the filth of sensuality, and in every way emphasize a depraved and fallen nature, because, singly or combined, they fascinate and enslave the uncultured and such as make no effort to resist their encroachments until, by desuetude, all will power is suspended, and the victim, yielding to despair, is ready to exclaim: "Evil, be thou my good!" so elucidating the force and truth of that Ciceronian mandate, which should be emblazoned upon every escutcheon, the portals and walls of every schoolhouse, college and reformatory in the land: *Animum rege qui, nisi pareat, imparet*.*

In this category may be placed the *ego* maniacs of Nordau, inebriates, sexual perverts, the vicious, capricious, criminals, ethical erratics, the numerous White House cranks that infest our city, and all anarchists.

In whatever light, however, it may be viewed, mind is characteristic of the human species and presents the two general aspects above given, in either of which the line of demarkation between man and brute is distinctly drawn, for no matter how much the latter, by care, discipline and restraint is taught it cannot become able to provide for itself or improve its surroundings, which the former, under the most adverse circumstances, can do.

As before stated, all lower animals have a sensorium and nerves of communication with the outer world similar to man; they see, feel, hear, smell, taste and to a greater or less extent understand; but beyond these set bounds they cannot go—no, not even with the greatest care bestowed upon them. The beaver builds its dam, the bird its nest and the bee its hive, now as of yore, and they will continue so to do until time shall be no more.

* Govern your passions which rule unless they obey.

"The lamb by thy riot doomed to bleed this day,
 Had he thy reason would he skip and play?
 Pleased to the last he crops the flowery food,
 And licks the hand raised to shed his blood."

It is the prerogative of man alone, in his mental capacity, to be progressive. Thus he must be, *nolens volens*, improving or retrograding; the former, though, it may be, he is deprived of one or more of the senses as observed in the blind, the deaf, or, as has been illustrated by the most barbarous of mankind becoming civilized and christianized because of some vestiges of the Creator's Image still resident in them; the latter, deteriorating, until, like Satan, grieving that all is lost, he cries out :

"Farewell, happy fields, where joy forever dwells !
 Hail, horrors ! hail,
 Infernal world ! and thou, profoundest hell,
 Receive thy new possessor."

For :

"The mind is its own place, and in itself
 Can make a heaven of hell, a hell of heaven."

In whatever light we may view him, however, man is the paragon of animals.

As has been already stated, the mind receives impressions through the senses and by comparison, association, memory, reason, conscience, imagination and fancy, disposes of them in accordance as one or more of these faculties may be brought to bear upon them. In which respect the mind may be compared to an artisan engaged upon some special work of art. He receives, measures, dresses, sorts, distributes or adjusts his material to complete the object in view ; if there be any fault in the articles selected, or any disability on the part of the artisan himself, the result will be apparent in the structure. So with the mind regarding the physical condition of the organs through which it manifests itself ; it will be normal or otherwise, according to the degree and extent to which the brain and its appendages are developed ; the faculties cultivated or neglected ; or any pathological changes that may occur in them that will enable us to mark the border lines between imbecility and intelligence, sanity and insanity.

This relation of the somatic to the psychical has been tritely illustrated as follows: If a person is traveling so rapidly in a car that he cannot discern the shifting scenery, he is said to be mechanically unfree; if stupefied, or insensible to the beauties of nature, he is ethically unfree; if he has not learned what is to be seen, and discriminate in these objects, he is logically unfree; if he is otherwise occupied, he is hindered by his personality, which he may command; if he is suffering from illness, or from mental images appearing so rapidly before him that he does not perceive outward objects, he is irresponsible.

J. B. Freidrich, Heinrich and others make three classifications of the somatic and psychical relation, viz: The first, called somatic, assumes the operations of the mind to be emanations from the body, and considers mental diseases to be bodily ailments.

Second, called psychical, are independent operations of the mind, and considers its disorders purely psychical derangement.

Third, called mixed, are assumed to be the operations (life) of the mind, but are half corporeal and half psychical diseases.

Stahl distinguished erotomania of psychical origin from somatic by the fact that in the former the ideas are from a preponderance of imagination directed towards a special person, in the latter the same directed towards the opposite sex generally. In a like manner we may differentiate mental delusion from sensual illusion. Illustrative of the former, or mental illusion, permit me to give a brief history of a case that may come under my care.

Mrs. V. W., age 36, married, the mother of four children, all girls, ranging from three to fifteen years old. She had had two miscarriages, but just previous to this attack her general health was good. She was of a sanguino-melancholic temperament, a well-nourished body, but not fat, of medium height, her disposition normally gentle, unobtrusive, courteous, amiable, dignified and ladylike in all her deportment; loved and beloved by her husband and children; indeed, it might be said of her as was said of old regarding the daughters of Israel: "She was so tender and delicate that she would not venture to put her foot upon the ground for tenderness." Yet suddenly, as it were, during the night her eye became evil toward the husband of her bosom, children, friends and neighbors; her gentleness turned to brusqueness, her quietude to boisterousness; her hitherto carefulness to careless-

ness ; her simplicity to cunningness ; her taciturnity to loquacity ; with dramatic fervor and in picturesque attitudes she would at times, when fully fired by her delusion, suggest or even rival, a Siddons, or Bernhardt, by her eloquent exclamations.

There was no history of insanity in her family on either side. She had been attended by your orator in her last two confinements, through which she passed without having experienced any more than the ordinary trouble in such cases. Neither had she had any serious illness subsequent to the birth of her youngest child, who was at the period of this attack three years old. I was called to visit this patient one morning when I found her laboring under great mental excitement, walking the floor, wringing her hands, her face the while bathed in tears, and she, withal, woefully distressed. Presently she grew more calm, when, between her sobs and tears, the following was gleaned from her :

Having retired the previous night at her accustomed hour, feeling as well as usual, she soon slept. During the night, towards morning perhaps, she dreamed, or thought she really had been in some mysterious way connected with an awful crime, the exact nature of which she could not recall ; there remained a vague and indistinct recollection only of the matter too horrible to contemplate, with which some of her relatives, friends and others were in a manner associated ; but who these were, and to what extent they were participants, she could not relate. One thought, however, was clearly impressed upon her mind when she first awoke, and which still haunted her, was that she had been commanded to give herself up to the police.

Absurd as such a notion may appear to others, with Mrs. W. for the time being it was a fixed fact, and to comply with the behest she was fully determined ; how to do it, and when to do it, were the all-important questions that now occupied her mind, and all attempts to convince her of the folly of such an act were vain and futile.

Prior to this attack, no one had ever heard this lady speak of a policeman ; surely she had never had occasion to know one in his official capacity. Behold her now, as days, weeks and months pass, anxiously waiting and watching for an opportunity to elude the vigilance of her guards, that she may execute her purpose to give herself up. One day, just before noon, during the tempo-

rary absence of her nurse, she took her youngest child by the hand, and with her stealthily left her home, repaired to the nearest police station, boldly entered, confronted the officer in charge, whom she addressed in a calm, determined manner, saying in words to this effect: "Sir, I am here to deliver myself up! take me!" Astonished at first by this sudden interruption, the officer surveyed her inquiringly, but long experience having used him to such encounters, he at once comprehended the situation, and, after asking for her name, residence, and the object of her visit, at the same time writing, or pretending to write, down her replies in the open book before him, he kindly advised her to return home and there remain until he could arrange for her reception, when he would send for her. A grievous disappointment this to the deluded one at first it seemed, but, after a moment's reflection, she became satisfied and departed with her child homeward. It was when I called upon her the next day that she triumphantly gave me the story of her escapade substantially as above related.

One good effect of this visit to the police station was to lessen her desire to go upon the street to give herself up. For now she was content to sit most of the time at the front windows of her dwelling, watching and waiting for the policeman to come and take her, whilst the remaining hours were spent in the solitude of a dark room, rocking herself and talking to herself, manifesting no interest whatever in household duties. Such was the routine of this patient's life for eight or nine months, during which time she slept little, ate sparingly, and consequently lost flesh; her pulse was irritable, generally feeble, whilst her temperature was subnormal.

The treatment of the case was both moral and medical, varied according to indications, and so long as she was not deemed dangerous to herself or to others it was thought inadvisable to place her in an asylum for the insane, especially as her environment was all that could be desired for home treatment.

When nearly a year had elapsed since the onset of her delusion she began to show signs of improvement, such as increased appetite, resting better at night, and manifesting some little interest in household affairs; yet her delusion, and determination to give herself up, still clung to her, notwithstanding the strenuous efforts

to divert her mind therefrom and expedite her total recovery. It was thought that if some powerful counter impulse could be brought to bear upon her mind it might be lifted from the rut in which so long it had been running. Heaven soon granted what love would not have desired, or ingenuity devised. One autumn day, just as the sun was declining in the west, the husband of my patient, in a whirlwind of excitement, called upon me and urged me to accompany him at once. Entering his carriage, we were rapidly driven to his home, where we were met at the threshold with the exclamation, "Too late; she is dead!" Not, as I at first supposed, my insane patient, but her youngest sister, who had been her nurse, guide, companion, philosopher and friend during all her long illness. This young lady, as I soon learned, had but a few moments before left her invalid sister to pay a visit in the adjoining house. Having finished her errand, and whilst in the act of rising from her seat to retire, she screamed, staggered and fell prone upon the floor, where she expired a moment afterwards.

The effects of this sad and sudden catastrophe precipitated upon my patient were awaited with the greatest anxiety, lest it would provoke a relapse more direful than the primitive disease. Hence the strongest efforts were brought to bear to counteract such a result, which happily were not without avail. For whilst taking but a passive interest in the funeral rites of her sister, she seemed to have but little thought of her delusion, which from this time began to fade rapidly away, and in just about fourteen months from the time of her seizure she commenced to wonder how she could have been so silly as persons told her she had been. All that time it had been as a dream to her. She wot not of it.

HYDATIDIFORM MOLE. DECIDUOMA MALIGNUM.
CHORION EPITHELIOMA.*

BY A. F. A. KING, A. M., M. D.

Washington, D. C.

Not many years ago most of us regarded hydatidiform mole (hydatidiform pregnancy) as a benign and comparatively harmless growth. We knew that it was liable to return, even without a second impregnation—when some of the diseased chorial villi had been unintentionally left in the uterus; and the older text books taught that this led to the erroneous supposition that the growth was malignant. Recent investigation, however, has amply demonstrated that in a certain proportion of cases the supposed erroneous supposition was not *really* erroneous, and that a rapidly fatal form of uterine cancer can and does occur as the result of hydatidiform degeneration of the chorial villi.

It seems, indeed, that a woman is not entirely safe from resulting malignant disease, though she may have been apparently well for six months, or even one, two or three years, after the discharge of a hydatidiform mole.

It is to this modern, and certainly most serious, aspect of hydatidiform pregnancy that I wish to ask the attention of the Society. To those whose studies have enabled them to keep pace with the recent literature of this subject there will be nothing new in what I have to say.

Still the subject itself is, I believe, sufficiently novel to merit consideration, and I feel sure the facts to be presented have not yet received the general recognition which they deserve. -

While I here speak of the recognition of these diseases as a somewhat new departure, it may be noted that Sanger, of Leipsig, described two rapidly fatal cases of sarcoma of the decidua serotina as far back as 1888; and the cases described by Chiari in 1877, of malignant neoplasms following parturition, were probably of the same character. So long may isolated observations remain pigeon-holed on the shelves of history before their importance becomes recognized.

It is, however, only during the last few years—certainly well within the last decade—that a sufficient number of cases have

* Read before the Medical Society of the District of Columbia, February 3, 1904

been recorded and studied to produce the definite knowledge of the subject that we now possess ; and this knowledge even today—*some* of it, at least—is still *indefinite* and unsettled.

Passing over the successive steps of the various investigations and discussions by which our present knowledge has been attained, and dismissing the cumbersome and changing nomenclature which always clings to the description of newly discovered pathological growths, it may be stated—if I understand the matter correctly—that two malignant growths, having a distinctly different origin—the one being foetal, the other maternal—require consideration. These are, 1st, *chorionepithelioma* developing from the epithelial cells of the chorial villi, therefore a *foetal* growth ; and, 2d, *deciduoma malignum* developing from the cells of the decidua, therefore a *maternal* growth.

[Synonyms : Chorio-epithelioma malignum ; chorioma ; deciduomatous sarcoma ; blastoma ; sarcoma deciduo-cellulare ; deciduo-chorioncellulare ; syncytium carcinoma ; syncytio malignum ; deciduo-sarcoma ; syncytioma malignum ; syncytial cancer ; sarcoma chorii ; infectious hemorrhagic sarcoma ; blastoma chorio-deciduo-cellulare ; sarcoma uteri deciduo-cellulare.]

Furthermore, it is generally admitted that the maternal growth (*deciduoma malignum*) develops into a sarcoma, and the foetal growth (*chorion-epithelioma*) into a carcinoma. However, at a recent discussion of this subject before the Obstetrical Society of London, Dr. Teacker, of Glasgow, maintained that they were neither sarcomata nor carcinomata, but should be considered as a distinct class *sui generis*. This view, I believe, is not generally concurred in.

Another interesting feature of these growths is that they do not, like the ordinary forms of uterine cancer, occur, for the most part, late in life, but come on most frequently between 20 and 30 years of age. No case is on record outside of the parturient age.

And again, unlike the forms of cancer with which we have so long been familiar, these do *not* begin in the cervix, but usually in the body and fundus of the uterus, where the placenta is likely to be situated. This last is of *great* practical importance, for the absence of any physical signs of cancer in the cervix might possibly result in the disease, higher up, being overlooked.

Still another striking characteristic of the growths we are considering is the *frequency* and *early* occurrence of metastases. Or-

dinary cancer usually extends by contiguous infiltration through lymphatic channels from the uterus to adjoining organs. But in the growths we are now considering the diseased cells, or actual fragments of diseased chorial villi, penetrate the blood vessels, break off and float away to distant organs, thus producing secondary growths in the lungs, vagina, liver, pancreas, pleura, kidneys, spleen, heart, diaphragm, ribs, pericardium and brain. Growths in the vagina have been observed while none could be discovered in the uterus; and, very curiously, and certainly contrary to all precedent, cases have been reported in which, after metastatic growths had appeared in the lungs, the patients *recovered*. Metastases in the lungs are so common that cough, bloody expectoration, or hemoptysis, "may be regarded as prevalent and important symptoms." (Ladinski.)

Finally, a still more curious phenomenon must be noted, viz: that tumors of an exactly similar structure to chorionepithelioma and deciduoma malignum have been discovered in the male, and also in women without any previous history of pregnancy. While these would at first sight seem to be impossible and inexplicable, they are really not so; but can be accounted for by supposing the morbid structures to have belonged to an included and fertilized ovum—a real twin brother of the individual in whom they are found. Cases occurring in the male have been seen in the mediastinum and in the testes.

I have said that these growths occur especially after hydatidiform pregnancies. It must be stated, however, that they are also met with after normal labor, after abortion, and even after extra-uterine pregnancy.

In the 210 cases of hydatidiform mole, recently collected by Dr. Findley, about 16 per cent. of the deaths resulted from malignant disease. And it is generally admitted at the present time that, of all the cases of deciduoma malignum and chorionepithelioma malignum thus far reported, 45 per cent. (nearly half) had a previous history of hydatidiform pregnancy. Thus, the hydatidiform mole, while not in itself necessarily malignant, is by no means the benign affair it was formerly supposed to be; and when it does give rise to cancer, the malignant growth once established, runs a very rapid course to a fatal termination, ending in from three to six months, unless treated early by radical methods; and this result seems to obtain in both forms of the disease, alike in

the maternal form—*deciduoma malignum*—and in the foetal growth—*chorionepithelioma malignum*.

Diagnosis.—Early diagnosis is of the first importance. The usual symptoms are recurrent hemorrhages, and a dirty and more or less foul watery discharge coming on some days, weeks or months after labor, abortion, or the discharge of a hydatidiform mole. The recurring hemorrhages increase in severity and soon lead to anemia and a cachectic appearance. The uterus is enlarged and soft, and the os patulous. In the descriptions I have read, *pain* is not mentioned as a prominent symptom, though some pelvic pain may be present.

On exploring the uterine cavity, the finger discovers one or many projecting masses of soft, friable tissue that may be easily broken down and extracted. Some of these may be necrotic with a foul odor. Similar masses are often found in the vaginal wall, especially in the anterior vaginal wall, as the result of metastasis. On being opened these growths are found to contain the same sort of material as the masses in the uterus. It should not be forgotten that metastases occur *early*, and that these growths may occur in the vaginal wall, even without any evidence of disease in the uterus. Occasionally a nodule may be discovered in the labium.

Portions of retained ova or secundines, such as we meet with after ordinary abortion or labor, will present the same symptoms of hemorrhage and foul discharge as I have just mentioned as belonging to these malignant neoplasms. How shall we distinguish between the two sets of cases? Very easily. In the non-malignant cases, after the cavity of the uterus has been thoroughly curetted, the symptoms disappear and the uterus remains normally empty. In these malignant cases, on the contrary, the growth not only returns, but returns with extraordinary rapidity, so that after the uterus has been completely emptied with the curette it fills up again, even within a few days or weeks. Marchand reports a case in which, after curetting, the uterine cavity was again completely filled with the morbid growth *five days* after the operation. This rapid recurrence after curettement—though not always as pronounced as in Marchand's case—is very different from the complete cure that usually follows the removal of remnants of an ordinary abortion, &c.

It is, however, to the expert microscopist—to one who is thor-

oughly familiar with the normal histology of the decidual and chorionic structures, and with their morbid proliferations and degenerations—that we must appeal for a positive diagnosis in doubtful cases.

It does not seem to matter very much, except as a point of scientific interest, whether any particular case be a decidual, or a chorionic growth, inasmuch as the symptoms, prognosis and treatment are about alike in both.

In deciduoma malignum, the malignant growth originates in the interglandular connective tissue, and develops into sarcoma. In it (I quote from Dorland's *Modern Obstetrics*, p. 231), "there are found peculiar and characteristic cells of large size, containing nuclei, these cells bearing some likeness to the giant cells of myeloid sarcoma but also closely resembling the true decidual cells of Friedländer. These cells are of divers shapes, and occur singly, in groups or in fused masses with large, deeply-staining nuclei."

In chorion-epithelioma, which is of more frequent occurrence than the decidual growth, and develops into carcinoma, the microscope reveals cells derived from and identical with the cells of Langhan, normally covering the chorial villi (being of epiblastic derivation); and, in addition, there are found masses of syncytium—simply nucleated protoplasm—identical with the outer syncytial covering of the chorion, superimposed over Langhan's cells. Normally the layer of Langhan disappears after the third month of pregnancy, leaving the chorial villi covered only by the syncytium.

In chorion-epithelioma, Langhan's cells and masses of syncytium are intermingled, sometimes one predominating, and sometimes the other.

Since hydatidiform degeneration of the chorial villi itself only occurs once in 2,000 or 3,000 pregnancies (*Hirst's Obstetrics*, p. 113), and since only a minority of these result in malignant disease, our interest in the subject necessarily diminishes from this infrequency of occurrence. Most of us perhaps have never seen a case either of deciduoma malignum or of chorion-epithelioma malignum. I have seen none. Possibly some cases may have been passed over without their true nature having been recognized. Dr. Ladinski remarks: "There is not the least doubt that these cases have occurred much more frequently than the records show,

and that they have been entirely overlooked or have been designated by some other name." Hirst tells us that Gaylord collected 55 reported cases and Veit 89.*

By way of illustration I will now present, in brief, a few cases selected from recent medical literature.

At a meeting of the Obstetrical Society of London, June 16, 1903, Dr. McCann reported the following case of deciduoma malignum: A woman of 35 years was admitted to hospital July, 1901, having had repeated hemorrhages from the vagina for three and a half months, which were alleged to date from an abortion, but this history was indefinite. She was extremely anemic. A distinct bulging mass was felt at the upper and back part of the uterine cavity, covered with smooth mucous membrane. On attempting to separate it the finger could be passed into the uterine wall amid the softened tissues of a malignant growth. Vaginal hysterectomy. Patient recovered, and without any subsequent recurrence.

In a most elaborate paper by Dr. Ladinski, of New York (*Am. Jl. Obstet.*, April, 1902), he puts together 132 cases, from which I make selection to illustrate the molar origin of the malignant growth, and showing also the importance of early hysterectomy and the error of postponing it, in the treatment.

Case 1. A woman aged 28. Had seven previous pregnancies. Three months after the discharge of a hydatidiform mole, she had recurrent hemorrhages, followed by hemoptysis and early death. Autopsy showed deciduoma malignum in uterus, with metastases in lungs and vagina. (1893.)

Case 2. Patient aged 35. Had four normal pregnancies and one abortion. In December, 1888, expelled hydatidiform mole. In September, 1889, profuse hemorrhage, which persisted until February 4, 1890, with hemoptysis and death. Characteristic growth in fundus uteri and left wall. Metastases in vagina and lungs. (1890.)

Case 3. Patient aged 45. Had had nine normal pregnancies. December 26, 1889, expelled a hydatidiform mole, after which had irregular hemorrhages until her death, March 30, 1891. Au-

* In one series of 128 cases in which the nature of pregnancy was recorded, 51 followed hydatidiform mole, 42 followed abortion, 28 labor at full term, 4 occurred after premature labor and 3 after tubal pregnancy.—Ladinski.

topsy showed nodular growth in anterior and posterior walls of uterus, with metastases in the lungs.

Case 4. Patient aged 22. Had previously one pregnancy at term and one abortion. In February, 1894, expelled hydatidiform mole, after which hemorrhages occurred at irregular intervals. Hysterectomy in May, 1894. Patient recovered, and was well one year later. Growth in uterus. No metastases.

Case 5. Patient aged 25. In July, 1892, expelled hydatidiform mole at third month of pregnancy. Twenty months later, returned in poor condition, with enlarged uterus and masses in the ovaries. Ovarian masses removed. Uterus stitched to abdominal wall, then incised and found to be filled "with soft, reddish, placenta-like masses." Record imperfect as to operation. But death occurred three months later, and autopsy showed uterine wall ulcerated, with numerous metastases. No record of hysterectomy.

Case 6. Patient aged 27. Had had two children. An abortion in August 1892. Suppression of menses (presumably from pregnancy) in November 1892. Flooding January 26, 1893. On March 3 large vesicular mole expelled. Flooding again in May, when uterus was curetted. Then followed parametritis and salpingitis. In September rigors, fever and pain. Nov. 7 fatal hemorrhage. Autopsy showed characteristic growth in body and neck of uterus, with metastases in vagina, pelvis and both lungs.

Case 7. Patient aged 35. Had had eight children and one abortion. On Dec. 28, 1892, was delivered of large hydatidiform mole at sixth month of pregnancy. Six months later metrorrhagia set in, when uterus was dilated and a mass the size of a bean removed by curette, in July. August 3 more hemorrhage and soft deciduomal masses removed by curette. August 11 vaginal hysterectomy, but there were metastatic growths in the vagina that it was impossible to remove. These grew rapidly with sloughing and fetor. Died six months after the operation and thirteen months after expulsion of mole.

Case 8. Patient aged 24. Had had two children; the last two and a half years ago. In March, 1892, expelled vesicular mole. One month later hemorrhage began, and, the bleeding persisting, vaginal hysterectomy was done, July 12, 1893. Patient recovered and was well three months later. Microscope revealed

malignant growth in uterus. No metastases beyond the uterine tissues.

Case 9. Patient aged 29. Had had four previous pregnancies. At the seventh month of fifth pregnancy a hydatidiform mole was removed after repeated hemorrhages. Subsequently hemorrhage recurred, with watery discharges. Six weeks later scrapings from the uterine cavity proved the growth to be deciduo-sarcoma. November 21, 1894, vaginal hysterectomy. Patient recovered, and was well one and a half years later.

Case 10. Patient aged 32. Had had five previous pregnancies; the last child having been born ten months before. At the third month of sixth pregnancy, patient expelled hydatidiform mole, followed by repeated hemorrhages and pain. Vaginal hysterectomy Sept. 14, 1892. Recovered and patient was well one year later. Characteristic growth in uterus.

Case 11. Patient aged 23. Third pregnancy resulted in hydatidiform mole which was discharged in July, 1893. Patient remained well and "regular" until January, 1894, when hemorrhages began and persisted until June, when vaginal hysterectomy was performed. Woman recovered and was well nine months later. Deciduoma malignum was found in uterine wall.

Case 12. Patient aged 44; multipara; last child born 3 years ago. After repeated hemorrhages for five months, hydatidiform mole passed. Hemorrhages persisting, an abdominal hysterectomy was done Oct. 28, 1895. Patient recovered and was well three months later. Characteristic growth in the uterus.

Thus from Dr. Ladinski's elaborate paper I have selected twelve cases which illustrate the danger of malignant disease after hydatidiform mole, which is the main fact I desired to accentuate. His list contains other cases of a *similar* kind, and yet others which were *not* associated with vesicular moles. It is now two years ago since Ladinski's paper was read before the New York Academy of Medicine, and he was able at that time to append 123 bibliographical references bearing upon this subject, most of them being of comparatively recent date, and comprising both European and American authors. Those who desire, therefore, to find a complete *resumé* of the world's knowledge upon this subject, up to two years ago, cannot do better than consult this excellent production of Dr. Ladinski.

Dr. V. B. Jackson spoke with reference to a hydatidiform mole which he had obtained in the summer of 1902 from a married woman 22 years old. He believed her to be four months pregnant. When he first saw her she was bleeding and had been having hemorrhages for the last three months. He inserted a tampon and sent the woman home. After 12 hours a few cysts came away, and he recognized the true nature of the case. He treated it like an ordinary miscarriage; tamponed again, and at the end of 12 hours most of the mass had come away. He scraped off the remaining shreds with his fingers. The uterus contracted well. There was a well developed placenta. The woman had no recurrence of the condition.

Dr. Smith commended the paper; it was interesting, thorough and up-to-date. In 1887 he read a paper before the Society in which he reported two cases of hydatidiform mole which had occurred in his practice, and exhibited the specimens in the second case. In one case about a quart of the bodies came away; in the other, a woman, apparently at full term, he removed half a gallon or more of them. The disease was interesting on account of the importance formerly attached to it. Every individual cyst was formerly believed to be a separate embryo, and an account was given of a certain Countess who gave birth to 200 or 300 embryos at one time. Of course these were only hydatidiform bodies. He had recently attended the daughter of one of the women whom he had delivered of hydatids. Neither of the women had presented evidence of malignant disease. Each had had four or five children. Tait reported the case of a woman who passed these moles in five successive pregnancies, and was at the time of the report pregnant for the sixth time, but without evidence of recurrence of the disease.

Dr. Smith had never seen a case of *deciduoma malignum*. Physicians disagreed as to its origin. Some thought it of chorionic origin; others that it was a form of sarcoma of the uterus. Those who did not recognize such cases were in good company. Many cases were overlooked until the fatal termination. *Deciduoma malignum* differed in at least one important particular from sarcoma, in that it did not leave its nest to go elsewhere, although it sent out its germs to other localities. Williams, of Baltimore, reported a case of degeneration of a growth upon the vulva producing ulceration and hemorrhage; metastasis occurred in the lungs, causing haemoptysis and other symptoms, and also in the vagina, uterus, ovary, spleen, liver, kidneys and other parts. Cases of complete migration of the disease had been reported; starting in the uterus, it entirely left that organ and went elsewhere, as stated before. Sarcoma never did this. Some claimed that the disease originated in the villi of the chorion; others, English authorities particularly, said that it was a pure sarcoma of the uterus. Only recently had sarcoma of the uterus received

the recognition to which it was entitled; formerly no distinction was made between sarcoma and carcinoma of the organ, but now they were differentiated, and treated accordingly.

Dr. King, in closing the discussion, said that being in good company was no excuse for making a mistake in diagnosis; to abolish this "good company" had been the object of his paper. Hydatidiform mole was not a harmless affection, and the old idea as to its malignancy was not, after all, far from the truth. The 6,000 or 7,000 cases of labor occurring in the District annually, would produce only two instances of hydatidiform mole, and only a minority of these cases become malignant; nevertheless the serious liability to malignant disease should always be suspected when there were recurrent hemorrhages. He had gained the object for which his paper was written, if he had shown that hydatidiform mole might be followed by, or become, malignant, and when there was hemorrhage, etc., early hysterectomy was preferable to tamponing, curettement, and other similar conservative measures.

ANOMALOUS ARTICULATION AND FUSION OF THE ATLAS WITH THE OCCIPITAL BONE.

By A. HRDLICKA, M. D.,

U. S. National Museum.

Dr. Hrdlicka said: These cases are rare. Instances have been noted since the last century, and written up by Macalister Harrison Allen, and a number of other authors.

The cases can all be grouped under six heads:

1. The most numerous. Cases wholly pathological. The atlas and occipital bone have become ankylosed as a result of some inflammatory process. The condition is quite frequent among whites and occurs also among other races; it has even been observed in oxen (LeDouble). [Dr. Hrdlicka exhibited the skull of a Pueblo Indian, a specimen from the National Museum, in illustration.]

2. Very rare. The bones are normal. There is no ankylosis, but an unusual articulation between some part of the arch of the atlas and the occipital. [A deformed skull of a Peruvian child was exhibited in illustration.]

* Reported with specimens to the Medical Society of the District of Columbia, February 10, 1904.

3. Occasional. Articulation or fusion of one or rarely both transverse processes of the atlas with a paramastoid process or processes arising from the occipital bone.

4. Rare. Anomalous and early fusion of a well developed atlas with occipital bone.

5. Occasional. Anomalous fusion of a more or less imperfect atlas with the occipital bone. Almost as a rule in these cases the posterior arch of the atlas shows some defect.

6. Occasional. Anterior to the foramen magnum one or two processes or tubercles are found, fused at base with the occipital bone. They represent, as can be demonstrated by a series of specimens, rudiments of the anterior arch of an atlas or a *proatlas*. Some investigators have expressed the opinion that such formations result from ossification in ligaments; with the more marked forms this is clearly seen to be impossible.

Dr. Battle asked Dr. Hrdlicka (who mentioned the sex of the exhibited skulls) how he distinguished a male from a female skull.

Dr. Hrdlicka replied that a distinction could be correctly made, by experienced students, in perhaps 90 per cent. of cases. No single sign could be depended upon, but all the characteristics of the skull must be considered. The supraorbital ridges and the mastoids were larger in the male than in the female. The forehead part of the female skull was more vertical. The size and capacity of the male skull, in any given people, was greater in the majority of cases. The face and base of the male skull gave an impression of greater massiveness. The upper maxilla of the female was usually more prognathic and slender, the angle of the lower jaw in the female more obtuse. The female teeth were slightly smaller. In races like the Indians, the teeth of the female were less worn at the same period of life than those of the male. The thickness and weight of the skull were often greater in the male. And there were further distinctions. If one carefully considered all these points he would make very few mistakes. In a few cases a correct distinction can only be arrived at by the examination of other parts of the skeleton, and if this was impossible, the sex of the skull remains doubtful.

EMPYEMA IN CHILDREN.*

By J. S. WALL, M. D.,

Washington, D. C.

I have nothing novel to present to you this evening, nor do I offer for your discussion such time-honored and battle-scarred subjects as "typhoid fever," or "when to operate in appendicitis," but I have chosen the disease or condition of *Empyema* as it occurs in children, both from the fact that its frequency warrants more attention than is commonly accorded it and that its treatment by modern methods is attended with eminent success, especially if instituted *early* in the disease.

The probability of complete cure, moreover, depends upon the fact, that *treatment*, to be efficacious, must be *early*, and to be adopted within a reasonable time, must be applied on the strength of a diagnosis made as soon as possible after the accumulation of purulent material within the pleural sac.

Empyema occurs with a frequency in children greater than in adults, but, being dependent upon causes peculiar to this period of life, offers better prospects for recovery, while at the same time from a diagnostic point of view, it presents difficulties not met with in later life.

That the disease in children does differ in many respects from that of older persons is admitted by all clinicians. Some would consider that form produced by the pneumococcus, which is so frequently found in childhood, as a *distinct disease entity*, entitled to a separate class of empyemata, the so-called *meta-pneumonic* empyema.

But, after all, the differences between the condition in children and that in adults are dependent, more or less, on the dissimilar chest formation in the child—the greater cartilaginous structure of the ribs, elasticity of the rib wall and resiliency of the soft parts.

Errors of diagnosis are mostly those which relate to auscultatory phenomena, at all times rather uncertain and nice of definition in childhood, but particularly so in empyema.

The condition is met with in all ages, from the new-born babe up to puberty, when the type approaches that of the adult, and differs little, if any, in symptoms or physical signs from effusions of pus encountered in fully developed individuals.

* Read before the Medical Society of the District of Columbia, January 27, 1904.

Of necessity the difficulties of diagnosis bear an indirect ratio to the age of the patient, diminishing as this advances, while the mortality is of like nature, probably dependent largely upon the question of diagnosis and consequent treatment.

A history of exposure to cold or wet is to be obtained in many cases, but empyema is usually a complication or sequel of other diseases, notably of pneumonia. According to Holt, nine-tenths of the cases in children under five result from an antecedent pneumonia, particularly that form known as "pleuro-pneumonia." In many cases the pneumonia is masked by the pleuritic effusion, whence the latter is presumed to be the primary disease, the former having escaped observation.

A fair analysis of cases would no doubt show even a larger proportion than given by Holt, as following in the wake of pneumonia.

Serous pleurisy is not common in children under five, nor does a serous effusion frequently become a purulent one. Even after the disturbances of oft-repeated exploratory puncture the conversion of a serous into a purulent effusion is an occurrence of unusual rarity.

The empyemata of children seem to arise *ab initio* as such, independent of any previous effusion into the pleural cavity, resulting directly from infection of the visceral pleura by organisms capable of producing suppuration. This view of the origin of the purulent material in pyothorax is further substantiated by a consideration of the physical signs to be mentioned later, which would indicate that the pus is produced gradually but progressively from a large part of the surface of the lung-protecting pleura, forming at first a thick layer of infective fibrin, and subsequently a collection of purulent fluid which gravitates to the dependent portions of the chest.

Besides the common empyema ensuing upon pneumonia we meet with cases resulting from various other local causes, produced by extension of inflammatory processes in adjacent organs or parts. Notable antecedents of such cases are infective inflammations of the pericardium or mediastinum, purulent peritonitis, necrosis of ribs or vertebrae, abscess below and opening into the diaphragm, or traumatism.

Suppurative conditions elsewhere, such as arthritis, osteomyelitis, the acute and septic fevers, notably scarlet fever, may be the causative agents in the production of empyema.

The bacteria, in the light of modern research, are, in the order of their importance: the pneumococcus, streptococcus, staphylococcus, tubercle bacillus and saprogenic organisms. In over two-thirds of the cases, according to Netter, the pneumococcus is the offending agent. Thué, in 24 cases of purulent pleurisy, found the pneumococcus in 14, streptococcus in 5 and tubercle bacillus in 3.

Netter, in 110 cases of all ages, found the streptococcus in 51, the pneumococcus in 32, saprogenic in 15 and the tubercle bacillus in 12. His comparative table of children with adults is more instructive, showing, as it does, pneumococcus invasion in 53.6 per cent. of the former, while in but 17.3 per cent. of the latter.

Usually one organism only is present, but two or more may be associated, such as the pneumococcus with the streptococcus and staphylococcus, or the latter with the tubercle bacillus.

Failure to find the pneumococcus, however, does not disprove the possibility that at some early stage of the disease this organism may have been present, but, because of its poor resisting qualities, has been swallowed up in the subsequent changes that have occurred. A sterile exudate suggests tuberculosis.

The predominance of pneumococcus cases in children is just the reverse of the conditions as seen in adults, most of which result from the ordinary pyogenic germs.

It is the opinion of pathologists that the micro-organisms of "pneumonic-fibrinous-pleurisy" first find their way through the lymph channels into the sub-pleural spaces, then into the pulmonary pleurae, and finally gain the *surface* of the pulmonary and costal pleurae; from thence they may be carried to the mediastinal spaces and reach the tissues of the pericardium, or even the muscular layers overlying the costal pleura.

These pathogenic organisms existing normally in the air passages need but the inducements of exposure to cold or wet, or other debilitating influences, to awaken their activity, when they may begin their ravages through the favoring agency of a *pneumonia*, or even independent of such an intermediary.

I will not discuss the pathology of this state, as it differs but little from that of the adult, excepting to note the tendency of children towards an involvement of the pleura in almost all cases of pneumonia.

I have seen at autopsy a layer of infective fibrinous lymph

more than a quarter of an inch in thickness covering the surface of the pneumonic lung, no doubt representing a beginning *empyema*, cut short by the death of the little patient.

The now discarded term of "pyogenic membrane" might be fitly applied to this pathological new formation which is met with in all cases of purulent pleurisy, in every stage of organization, in early cases, as a friable, adherent film; in older ones, as a thick, organized, unyielding mass of tissue adding to the difficulties of treatment and increasing the deformities ensuing upon the empyematous state.

The pus varies in quantity from a few cubic centimeters, to one or even four or five liters, and is usually, thick, creamy, and odorless.

The *symptoms* of empyema are more or less characteristic, and it is no little reproach upon the acumen of clinicians that so many cases are brought to operation only after the accumulation of pints of pus in the thorax or the spontaneous rupture of this material in an effort of unaided nature to effect a cure.

Brothers well describes two classes of cases. In the *first* the disease is acute and sudden in its onset, beginning with convulsion, chill or vomiting. Fever runs up to 104 or 105; prostration is *intense*. Soon appear the characteristic respiratory efforts, short, quick, chiefly abdominal, and accompanied with moans and cries. *Cough*, at first absent, soon comes on in the form of short, hacking efforts, dry in character, unless complicating pulmonary lesions co-exist, when the cough may be soft. The dyspnoea and restlessness are painful to behold. For a week or ten days the patients have a continuously high fever, losing rapidly in weight and strength. The symptoms then begin to subside, the fever continues on a lower grade. Convalescence is not progressive, but cough persists. The child continues weak, irritable, and becomes emaciated.

Cases of the second class, with similar symptoms, follow a more subacute course from the onset.

In the *acute* cases, those often considered as primary empyema, the type of the disease is unusually severe, and pus may be found in the chest as early as the third or fourth day.

Such rapid accumulation of pus in large quantities is remarkable, but many observers have noted this peculiarity of empyemata in childhood, a phase of pleural inflammation which is shared

by *serous* pleurisy, in which, within 24 hours, an effusion of such magnitude may occur as to threaten the life of the patient by suffocation.

Fulminating empyema bears no unlike resemblance to a condition seen in another serous cavity of the body, namely, the peritoneum, where in rapid cases of appendicitis there may be produced in a few hours excessive quantities of pus as determined by subsequent operation.

Ordinarily the empyema following pneumonia is announced by an exacerbation of all symptoms, if the pneumonic process is still active, or, a return of fever and cough with dyspnoea, if occurring after the crisis.

The failure of a crisis to appear, the increase of respiratory distress, paroxysms of intense, ineffective cough, and rising temperature are extremely suggestive of empyema.

The onset of empyema during the course of diseases other than those of the respiratory tract is even more plainly marked than in the "meta-pneumonic" cases.

As the effusion increases in quantity the respiratory distress is greater, dyspnoea becomes more intense, and cyanosis may appear unless the intrathoracic pressure is relieved by operation.

The fever in empyema is usually continued in type—*rarely* of septic nature with chills and sweats—while in some cases the temperature may be normal.

A leucocytosis is the rule and is of aid in diagnosis.

There are certain cases, especially in infants, to which the term *latent* has been applied because of the difficulty in recognizing the existence of empyema. They are characterized by a more sub-acute course, emaciation, infrequent, purposeless cough, tachypnoea, ill-defined physical signs, which may change from day to day; anemia possessing a peculiar yellowish tinge, and finally death from asthenia, most of which cases are considered to be those of marasmus.

Henoch says, however, "that the latency of the pleurisy is owing *not* to the nature of the disease, but to the carelessness of the physician."

The pulse rate is almost always *high*, even when a temperature near the normal line masks the diagnosis. In old cases progressive emaciation, clubbing of the fingers and a distinct cachexia may be observed.

The preceding symptoms serve to suggest the existence of empyema, but it is upon the *physical signs*, as elicited by careful and repeated examinations of the chest, that we must rely in forming a diagnosis, aided and finally consummated by exploratory puncture, a harmless but invaluable procedure in arriving at a correct conclusion, not only as to the *presence* of fluid in the pleura, but also as to its *nature*.

The physical signs of empyema are notoriously uncertain, but this uncertainty decreases with the ability of the practitioner to realize the essential differences in purulent effusion of children from that of older years, and to interpret with nicety and precision certain of these signs of importance, while he discards other equally marked phenomena or relegates them to the minor position which they deserve.

We meet with many paradoxical findings in our chest examinations of pyothorax.

If an effusion of pus exists in the pleura of such quantity as to effect certain changes in the normal physical signs, we would likely find the following phenomena exhibited :

On *inspection*, there is noted in old cases anemia, emaciation, and, in almost every instance, dyspnoea, with probably moderate cyanosis and *abdominal* breathing in cases of large effusions.

The chest in particular reveals restricted movement, often immobility of the affected side, best seen when viewed from behind ; bulging of the intercostal spaces or more frequently of the whole chest wall over the seat of empyema.

The explanation of this is that it is due to the greater degree of elasticity of the thoracic wall in childhood, which usually bulges *en masse* instead of presenting prominent intercostal spaces such as occur in the more resistant parietes of adults.

The skin over the place of effusion is often oedematous.

The disparity in size of the two sides of the chest may be noted especially in large effusions, as well as the displacement of adjacent organs, particularly the heart, a condition of disturbed relationship much more frequent in childhood than in later life.

Palpation confirms the signs elicited by inspection, while in addition we learn from this procedure a most valuable fact, the total absence (rarely the enfeeblement) of the *tactile fremitus*.

In *percussion* rests the criterion by which to judge of the existence of fluid within the pleural sac.

Percussion, to be of value, must be gentle, else, because of the nature of the anatomical peculiarities of the child's thorax, we will by forcible tapping, bring out the resonance of the deeper organs, such as the lungs, stomach or colon, thus obscuring the conditions as they really exist.

One finger as the plexor will suffice in most cases to yield the proper note.

In effusions of any appreciable size there exists FLATNESS—not merely *dullness*, but *flatness*—over that portion of the chest occupied by the pus.

This flatness imparts to the finger of the examiner a characteristic, *wooden, doughy*, resistant quality, which differentiates it from ordinary dullness caused by consolidated lung, and which, once appreciated by the physical diagnostician, will serve him well in ascertaining the presence of fluid within the chest.

The upper limit of flatness is rarely affected by changes in the position of the patient, as is seen in serous effusions.

From a consideration of the adult cases of collections of fluid in the pleura, whether *serous* or *purulent*, we would expect to find over the area of effusion in the child's chest greatly *diminished* or, more probably, *abolition* of the respiratory murmur, with absence of the normal vocal resonance. If such auscultatory signs *did exist*, considered in connection with symptoms suggestive of empyema, the diagnosis of purulent effusion would not be unusually difficult; but it is because of the existence of *anomalous* signs, contrary to the accepted laws of physical diagnosis, that errors are so frequently made in recognizing puerile empyema.

The expectation that voice sounds and breath sounds are incapable of passing through the fluid in the thorax to the ear of the examiner will in most cases prove faulty, and replacing such negative signs we find bronchial breathing and bronchophony heard oftentimes throughout the whole area of *flatness*.

How is this anomaly to be explained? Breath sounds as a rule are not transmitted through a serous effusion, nor do they penetrate a purulent one when occurring in the thorax of an adult.

On consulting these charts, which I have copied from several works on physical diagnosis, we notice certain differences in the appearance of the lung compressed by *serous* fluid as contrasted with one whose expansion is restricted by an accumulation of PUS. Numbers 1 and 2 represent diagrammatically *serous* effu-

sions, in which the hydrostatic pressure is exerted mostly from *below*, upwards, forcing the lung to be compressed in the direction of its long axis, the *bulk* of the serous effusion remaining in the lower portion of the pleural sac, while but *little* accumulates between the layers of visceral and parietal pleura above the lower border of the crowded lung.

The physical characteristics of the limpid, fluent material of *serous* exudates are determinate factors in explanation of the tendency of such effusions to seek the lowest level in the thorax, thus separating for some distance the diaphragmatic layers of pleurae, while but little altering the relation between these structures adjacent to the thoracic wall.

Purulent effusions, from the initial stages of their growth, tend to push apart the *highest* portions of the affected membranes, as well as those near the bottom of the thorax, and, by reason of the viscid, glutinous character of the pus, aided by the many adhesions so readily formed, compress the lung *on all sides*, eventually, however, showing a greater accumulation of the secretion in the most dependent parts.

In this connection I should like to quote from Holt and Boviard. The former says, in his work on Pediatrics: "Even when the fluid is moderate in quantity, it is not *all* at the bottom of the chest, but is generally distributed over a considerable part of its surface, and its depth at the middle and upper part of the chest may be only half an inch, or even less. When the accumulation is larger the lung does not float on the surface of the fluid, but the fluid *surrounds* the lung, which is compressed on all sides."

Boviard, from a post mortem analysis of 101 cases, concludes that "the most frequent or most typical effusion is the thick, creamy exudate, of such consistency that it will not flow, will not sink to the most dependent portions of the pleurae, but remains plastered like a *mortar* on the affected area of the pleura, or when the lung is removed it can be *scooped* out of the open pleurae with the hand. Sacculation is much more frequent than in later life. Especially are the thick exudates just described likely to be shut in."

Now, what has this condition to do with the anomalous breath and voice sounds so confusing in puerile empyemata?

Barbour remarks, rather fancifully, but with considerable degree

of probability, that "one source of error frequently met with in empyema is some adhesion between the two pleural surfaces. The fluid may be all around and above the adhesion, but the adhesion acts as a telephone wire to transmit sounds from the root of the lung to the ear of the observer."

In my own mind, an explanation of the persistence of sound waves through the empyematous fluid is to be sought for from a *physical* standpoint.

The *intensity* of sound depends upon the energy of vibration of the sonorous body, or, in other words, upon the excursions to and fro of the vibratory particles, which are of necessity of greater degree in elastic bodies and of equal necessity, *greater* in the resilient lung of the child than in the adult. This is probably one of the causes of what is universally recognized as the puerile, harsh, or broncho-vesicular breathing peculiar to childhood, while no doubt further due to the lesser predominance of lung tissue over bronchial tissue.

So at the outset, considering the size of the individual and the development of the pulmonary structure, we have a relatively greater intensity of voice and breath sounds in the *child* than in the *adult*.

This intensity of sound as heard by the auscultating ear varies directly with the distance between the lung and the ear, and is consequently *greater* in the purulent effusions of childhood than in serous ones, because a *thin* layer of pus giving a flat note on percussion, will yet transmit the waves of voice and breathing owing to the peculiarities of such effusions, which I have endeavored to explain from the charts. The chest wall of the child is also much thinner than that of the adult.

Further, the intensity of sound varies with the density of the transmitting medium. The exudate and new formation of empyema have a greater *specific* gravity than serous fluid, hence forming a better sound medium.

I have undertaken this explanation of the confusing findings of auscultation, believing that it will be the rule to hear bronchial breathing and vocal resonance persisting at *points* on the chest wall, which, while they give distinct flatness on percussion, are nevertheless separated from the lung by a layer of pus of only moderate thickness.

Cases in which there has been a complete engulfing of the lung

substance by large effusions, resulting thereby in much enfeeblement of its vibratory power and increasing markedly the distance through which sound must travel from the root of the condensed lung to the ear, ordinarily show diminished or absent voice and breath sounds as seen in serous effusions of both children and adults.

But even in such cases, Koplik says (1902) "the pleural cavity may be *full of fluid*, and still the voice and breathing will be normal or only slightly diminished in intensity over the whole chest anteriorly and posteriorly.

"Bronchophony and bronchial breathing with pleuritic râles may in some cases be heard over the whole of one side of the chest, the seat of effusion."

Other anomalous signs are *dullness*, not absolute, and not extending beyond the edge of the sternum; absence of any displacement of the heart; absence of respiratory distress; no bulging of the intercostal spaces or side of chest, or contraction of the affected side.

There are *two* methods of cure by nature: first, *absorption*; second, *rupture*. That the first does occur in *rare* instances, especially in pneumococcus cases, must be admitted, for such reported cases have often been confirmed by exploratory puncture.

Rupture externally, usually in the region of the nipple, is nature's means of cure—a *vis medicatrix naturae*, without the aid of the medical attendant, who is both to be pitied and censured. Such an event is followed by an amelioration of symptoms, but not always by permanent *cure*, as the sinus thus formed may discharge for months.

Rupture may occur into a bronchus or the oesophagus through the diaphragm into the abdominal cavity, setting up a fatal peritonitis; in the lumbar region, or even at the seats of election of a psoas abscess the pus may find its way out.

Complications are met with, such as pericarditis, especially in left-sided empyema, chronic broncho-pneumonia, septicemia or pyemia.

Death may result directly from the disease, from anesthetics during operation or from one or more of the foregoing complications.

In 19 cases in children, rupturing externally or into a bronchus, according to Schmidt, 17 died, a mortality of 90 per cent.

J. Lewis Smith refers to 10 cases. Five were operated upon and recovered, though 4 of these were in a very much reduced state. The other 5, owing to uncertain diagnosis and for other reasons, were *not* operated, and *all* died.

Even as early as 11 to 16 days, Barthez and Sauné found in 21 cases not operated upon, a mortality of 33 per cent. The average mortality is from 6 to 8 per cent. in all cases.

In Koplik's 120 cases, 20 died—a mortality of 6 per cent.—four of the fatal cases within one to five days after admission. "In the latter, *not* the operation, but the *delay* in interference—with consequent sepsis or systemic infection was the cause of death."

The diagnosis comprises an inquiry into the questions, does fluid exist in the thorax; and, if so, what is its nature?

From chronic pleuritic inflammation with a deposit of fibrin, not only in the parietal but in the visceral layer of pleura, we must rely upon the percussion findings; the absence of many symptoms of active inflammation, and a leucocyte count, which may be of value.

From "unresolved pneumonia," by the physical signs enumerated heretofore, by the *absence* of *rales* in empyema, by percussion flatness especially, and finally by a knowledge of the *all important* fact that empyema is much more likely to be considered as an unresolved pneumonia, than the reverse! This is a dictum, born of unfortunate diagnostic experiences, to which many have testified!

In brief, *flatness*, not dullness, on percussion, with a wooden, doughy resistance to the finger; the absence of *râles*, even with the persistence of voice and breath sounds, with abolished tactile fremitus—*all* point to fluid in the chest, and more particularly to its purulent character.

To clinch the *first* question, as to the presence of an effusion, as well as to determine accurately the *second*, as to its nature, exploratory puncture should be resorted to—an operation practically devoid of danger, and one which should be employed in every case of *suspected* or *apparent* empyema.

Such puncture has been performed in hundreds of cases, with no untoward results, and to neglect this important measure is as *criminal* in the physician as it is *deleterious* to the little patient to whom, in his helpless state, is denied the right of skillful treatment.

In every case of doubt, and as a preliminary to radical treat-

ment, in every case BEYOND any doubt, exploration with a large-bore sterile needle, attached to a tight syringe, should be performed, preferably with the patient in the upright position.

Failure to find pus, though the signs be indicative of empyema, should but stimulate the physician to repeated efforts, either at the same sitting or at a subsequent examination. Care should be taken to avoid rough movement of the needle within the thorax, and explorations in other directions than the original insertion should only be made after the needle has been almost entirely withdrawn from the chest, or, better still, at other points over the suspected region.

The *treatment* of empyema is surgical. Sir Joseph Lister has well said: "There are few more beautiful things in antiseptic surgery, as contrasted with the results of former practice, than to see the abundant purulent contents of a pleural cavity give place at once to a serous effusion, rapidly diminishing from day to day."

Aspiration has been discarded by modern physicians, except as an exploratory measure or as a means to abstract a portion of the purulent exudate to alleviate critical conditions until further operative procedures may be instituted.

The modern treatment consists of either simple incision and drainage, or of resection of one or more ribs, the majority of observers preferring the former to the more formidable operation of excision.

The great majority of pediatricians favor simple incision and drainage, while surgeons, as a rule, advise resection.

Incision is performed under all aseptic precautions, either with general or local anesthesia, at a point in the seventh or eighth interspace in the posterior axillary line, or nearer the angle of the scapula, to insure better drainage.

The pus is allowed to flow out slowly in order to avoid the respiratory and circulatory distress incident to the sudden changes in intrathoracic pressure, and drainage provided for by long fenestrated rubber tubes passed into the lowest pockets of the empyema.

The tubing is shortened from day to day as the discharge lessens, and is dispensed with as early as possible—by Sutherland as early as the third day.

Irrigation is usually unnecessary, as the fragments of fibrin may

be removed by forceps as they present at the opening, and the pus will be extruded by the gradually expanding lung. Most cases under such treatment get well in the space of four to eight weeks.

Exsection of ribs dates from the time of Celsus, 150 A. D. While suggested in more modern times by Roser, in 1859, previous to 1876 there were only two reported cases of operation done in Great Britain to improve drainage in empyema cases—a possible argument that such cases must have recovered after simple incision, as thoracotomy was then in vogue.

Subperiosteal excision of an inch or more of the eighth or ninth rib is the operation of choice. This procedure, however, demands the use of general anesthesia, which is often strongly contraindicated in the empyemata of childhood.

That some cases may require such radical measures is to be admitted, but statistics and observations of many writers of renown tend to show that most cases get well under incision and drainage which may be done under local anesthesia of ethyl chlorid or cocaine; while, on the contrary, the use of ether or chloroform, which is indispensable in resection, is attended with the gravest accidents, and frequently death. Holt has seen four cases die on the table from the anesthetic *alone*, and is a firm champion of *incision*.

Ether, naturally contra-indicated in diseases of the respiratory tract, is even overshadowed by *chloroform* in its direful results, when used in cases of empyema.

The indication for resection is when the ribs are so close together that it is impossible to drain the cavity without resection. This is a condition that very rarely occurs in children, and is only likely to be found in long standing cases, those which should have been brought to surgical intervention much sooner, when drainage is imperfect after incision, when the lung has re-expanded, and the chest wall contracted, and yet the sinus does not close.

Huber has shown in 100 cases under his care that an india rubber tube three-eighths of an inch in diameter can readily be introduced through the intercostal spaces of a one-year-old child. Even if the tube be a little compressed at first, on the next day it will be found expanded to its full diameter. Other advantages of incision under local anesthesia, according to Barbour, are that shock is infinitesimal, the operation can be performed quickly, and,

if pneumococcus infection is present, no other procedure is necessary.

The shock of the operation and the length of time necessary for repair after resection of ribs add to the dangers of this operation, while infection of the exposed ribs with osteomyelitis is no uncommon occurrence.

It is to be admitted that resection has been required later in a number of cases of primary incision, but even a primary exsection has required a secondary exsection in reported cases.

The subsequent treatment by either method embraces the use of pulmonary gymnastics to aid in the expansion of the compressed lung, while, in event of failure of this to occur, Estlander's operation may be required to effect a cure.

In conclusion, if these scattered thoughts have served to emphasize in any way the importance of early diagnosis of empyema, or the means of such diagnosis, particularly the characteristic percussion note of "pleural flatness," and the anomalous vocal sounds, I shall feel that they have not been purposeless.

Dr. Acker said that the paper was both interesting and timely. Timely, because pneumonia was prevalent just now to an unusual extent, and any case in children might be followed by empyema. The diagnosis was the most important point; prognosis and treatment were simple after the diagnosis was made. One should always be on the lookout for empyema in pneumonia in childhood. The insidious cases were most deceiving; children who were sick for a time, then became emaciated, had dyspnoea, and then symptoms of empyema.

The most important symptoms were sweating, bulging of the side, oedema of the tissues around the affected area; dullness and absence of breath sounds were pathognomonic; bronchophony was not infrequent. In examining the child, it should be placed in the upright position. Operations should be done as soon as diagnosis was made; delay only added to the danger. The diagnosis was difficult, and sometimes impossible. The danger of overlooking the condition should cause us to continually be on our guard.

Dr. Reyburn had seen many cases of empyema in children. The diagnosis was made with difficulty. Dullness and flatness were pathognomonic; the child always lay on the affected side, being most comfortable in that position. He was glad that Dr. Wall had commended incision rather than exsection. The latter was only indicated when the former failed to relieve. Incision

was all that was required in most cases. The tube should be removed as soon as possible, as it acted as a foreign body, and tended to cause an extension of infection. A week ago he had seen a case of empyema in a man; it was remarkable in that the chest measure on the affected side was two inches more than on the other, and that the next day Dr. Reyburn drew off five quarts of pus. He expected to perform incision on this man in a day or two.

Dr. S. S. Adams said that if we could rely upon the pictures in the books we could not make a diagnosis in these cases without difficulty. The more cases one saw, however, the more he was confused. To his own chagrin, sometimes when he was positive that pus was present, none was found at operation. Last Spring he saw two cases of empyema in children, and in both, his diagnosis was confirmed by operation. Soon after, he saw another child, and confirmed Dr. Grasty's diagnosis of empyema; he punctured the chest and found pus. Dr. Thompson operated the next day on a case and found not a drop of pus. At autopsy it was found that the child had been suffering from multiple abscesses, and the syringe had entered one of them. Last autumn Dr. Adams saw a case in which the diagnosis was apparently clear, but at operation no pus was found. In older children the diagnosis was easier. It was also easy in typical cases.

Exploratory puncture should be performed in all doubtful cases. There was little danger that it would do any harm. As to operation, he favored a pretty complete opening. In some cases the pus was thick, and was removed with difficulty. Drainage through a tube was in some cases impossible. The sooner the operation was completed the better for the patient. General anesthesia was best for radical operations. Some patients, whose physical condition appeared to be bad while on the table, subsequently got on all right.

Dr. Barnes said that Dr. Wall, in his paper, had thoroughly covered the subject of empyema in children, bringing it up to date in every respect. Dr. Barnes wished to inquire how frequent these cases really are. Dr. Reyburn spoke of seeing many; Dr. Adams' remarks were likewise interpreted. As for himself, he had not seen more than two or three cases in private practice, with possibly a similar number in dispensary work; consequently he believed the condition to be comparatively rare outside of children's hospitals. He considered broncho-pneumonia the pneumonia of infancy, and believed the pneumococcus to be more frequently a secondary than a primary cause. In the empyema of infants and young children, nine-tenths of the cases followed pneumonia with an involvement of the pleura, described as pleuro-pneumonia, the tuberculous and streptococcus empyema of adults being exceptionally rare in infants.

Dr. Adams, replying as to the mortality after operation, said that there had not been a death following the operation for empyema in the Children's Hospital, Washington, in the last 26 years, so far as he knew.

Dr. J. Ford Thompson congratulated Dr. Wall upon his presentation of the subject. He had covered the ground thoroughly, except so far as the surgical treatment of the bad cases was concerned. Dr. Thompson began operating on these cases long ago, at first by aspiration, then by incision and drainage; but in late years he had always excised a portion of one or more ribs to facilitate drainage. With one exception there had been no death from empyema at the Children's Hospital to the present time. He had not obtained satisfactory results from incision and drainage, and he now performed exsection at first operation. In the exceptional case, above mentioned, the distension was so great that it was impossible to tell with certainty what the condition was or whether it was abdominal or thoracic. Incision and drainage caused an improvement in the child's condition, but the discharge never entirely ceased. Amyloid degeneration set in, and the patient died indirectly from this cause. Radical operation (Estlander's) was performed later.

Dr. Thompson related the case of a child who was in an almost dying condition when operation was performed. The thorax was enormously distended. He exsected about two inches of two ribs, and found the pleural cavity filled with great lumps of lymph, which could not possibly have escaped through a tube. They were taken out, the wound was drained, and there was now every hope of the child's recovery. The majority of cases were like this or the following, in which operation was performed several months ago, but a sinus persisted and necessitated another operation. This he did, exsecting the ribs from the 2d to the 8th or 9th, making an enormous wound. The adhesions which bound down the lung were broken up as far as practicable and the wound was loosely packed with iodoform gauze and drained. There was perfect recovery. He had operated on a similar case today. The method gave perfect satisfaction, and it was the only one that did in the vast majority of old cases. All the patients recovered, which could not possibly be the case if incision and drainage only were performed.

He gently irrigated in all these cases. The child coughed, and masses of lymph were thus expelled, and all was accomplished at one time. He believed in exsection of one rib in the posterior axillary line, and drainage, for the first operation. If the patient completely recovered, well and good; if not, a radical operation as described above must be performed. Estlander's operation, as described a few years ago, was not radical enough. Not only must the ribs be exsected, but the fibrous tissue beneath

the ribs must be cut off flush with the edges of the excised ribs. All adhesions must be broken up, peeling off the outer tissue of the lung, if necessary. There would be sinking in of the chest wall, but it caused less deformity than would be supposed; the muscles grew over the opening, and its wall became quite strong.

Dr. Thompson discussed the Shade operation, and said that it was of great value in some cases. Radical operation was the only satisfactory treatment in chronic cases, and it was wrong to advocate the minor operations, as they were inadequate in such conditions. It was impossible to break up the adhesions in most cases, and breathing exercises had failed utterly to do this, in his experience; the drainage was imperfect, and there was danger of entrance of air through the tube, with putrefactive organisms—danger of infection, etc.

Dr. Acker said that there was a case of empyema at the Children's Hospital now, making five in all since last June. Many of the early cases could be cured by incision and drainage; the older ones must be treated as described by Dr. Thompson.

Dr. Wall, in closing the discussion, recounted a number of the points made in his paper. As to treatment, he agreed with what Dr. Acker had just said. Incision was not a *minor* operation. If anything, it was more difficult of performance than the radical operation, because, in the latter, the patient being under an anaesthetic, the surgeon had everything his own way, and nothing on the patient's part to contend with. This was not the case when incision was performed under a local anaesthetic.

CEREBRAL HEMORRHAGE OF TEN WEEKS STANDING.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

The specimen consists of the right half of the brain, showing a large, firm bloodclot in the thalamus and the adjoining caudate nucleus.

From a colored man, age 56, a stableman by occupation. He had had the minor contagious diseases of childhood and also rheumatism, but his health had been generally good; was a moderate drinker; no venereal history. For some months he had com-

* Reported with specimen to the Medical Society of the District of Columbia, January 20, 1904.

plained of pain in left shoulder and lower limbs and sometimes of headache. While at work September 25, 1903, he felt a tingling in his left arm and leg and like pinpricks in the palm of the left hand and sole of the left foot. Afterward had frontal headache at times and complained of a foul stomach. A little over a month after the seizure he was admitted to hospital; was then fairly nourished. There was some congestion of the right eye and the pupil was smaller than the left; right side of face somewhat drawn; pulse weak and compressible; paralysis on left side up to shoulder. Temperature 98.6 to 98.8, pulse 62 to 70, respirations 22 to 24. While in hospital he was much constipated, requiring purgative enemata. Urine 1040, but no albumin nor sugar.

A few days after admission his temperature rose to 100.4, the next day to 100 and again a few days later to 100; the pulse and respiration were apparently not increased. Afterwards the temperature ranged from 96.4 to 99 till November 13, when it again rose to 100, on the 23d to 100.6, 24th to 100, 25th to 100.6. Otherwise it ranged from 96 to 99, with pulse 78 to 100 and respirations 20 to 30. For several days he complained of much pain in the hip. Died December 4, *just 10 weeks* after the initial symptoms of apoplexy.

The necroscopy showed much emaciation; there were oedema and gangrenous cavities in left lung upper lobe, and the lower lobe was everywhere solid, soft and passing into gray hepatization. The coronary arteries of the heart were calcareous. The liver and spleen were darkly pigmented, suggesting an old malarial trouble. In each kidney was a large watery cyst, probably congenital.

Death was due, therefore, to left pneumonia which must have been contracted in hospital, and corresponded to the exacerbations of temperature; in this connection the age of the man, namely, 56, must be considered.

SURGICAL METHODS AMONG SAVAGE RACES.*

By EDWIN LEE MORGAN, M. D.,

Washington, D. C.

This paper, which I present for your consideration, does not exhaust the subject—the history of surgery among savages. I have collected a few of the more important operations and customs as practised by primitive people.

In the earlier ages, the doctor and surgeon were one and the same person, but as time rolled on, the physician and surgeon became distinct personages. The old custom of the chirurgeon and physician being one and the same party is found in the country medical man of our century. Time, in this latter respect, has made no change.

I claim nothing original in my paper. I present the labors of others; their scientific gems of research and thought.

Sydenham, according to Berdoe, called Hippocrates “the Romulus of Medicine, whose heaven was the empyrean of his art. He it is whom we can never duly praise.” He termed him “that divine old man,” and declares that he laid the immovable foundations of the whole superstructure of medicine when he taught that “*our natures are the physicians of our diseases.*”

Scabies was the goddess of itch. The plague-stricken prayed to the goddess Angeronia. Women, in their troubles, sought the aid of Fluonia and Uterina. Ossipago was the goddess of the navel and bones of children. There were many goddesses of midwifery. “Carna presided over the abdominal viscera;” bacon and beans were offered as a sacrifice to her. St. Augustine “pours his satire and contempt on women’s goddess.”

Pliny complained “that people believed in any one who gave himself out for a doctor, even if the falsehood directly entailed the greatest danger.

“Unfortunately there is no law which punishes doctors for ignorance, and no one takes revenge on a doctor if through his fault some one dies. It is permitted him by our danger to learn for the future, at our death make experiments, and without having to fear punishment, to set at naught the life of a human being.”

This was Pliny’s statement in remote ages, and yet we know

* Read before the Medical Society of the District of Columbia, February 10, 1904.

today the unfortunate doctors were too often killed among primitive people. I knew of a case where the medicine man out West among the Indians was killed when the patient died.

Among some savages, "as in Ponapé, boys are always subject to semi-castration, as Dr. Finsch remarks, in order to prevent the possibility of orchitis, and further, because the girls consider men thus distinguished handsomer and more attractive." Like removing a healthy appendix to prevent any future trouble. The incision of the perineum before labor was used by primitive people, and its mechanical closure afterwards.

The Africans seem to enjoy a "freedom from puerperal fever, and the impunity with which abortions are produced," with no bad after effects. These natives recover from wounds and operations without sepsis, and without manifesting pain. Clot Bey states that native Egyptians are good subjects for operations, "shock being unknown and the dread of operation not existing." The Jesuit Father Cronenberg, says Dr. Gihon, "attributes the marvelous rapidity of healing of wounds among the Zulus and other savage tribes not alone to climate and mode of living, but to the natural endowment of the people." "Felkin finds the tactile sensibility of Europeans, Arabs and Negroes to be in the proportion 1, 2, 3, the last exhibiting in consequence their stoical indifference to pain." Dr. Grant (Bey) "calls attention to the destruction of life and, consequently, influence on the number of births in Egypt from craniotomy performed by ignorant midwives; and the thousands of criminal abortions practiced by them are also a factor in reducing the normal birth rate."

Dr. Gihon, quoting from an authority on China, says: "The Chinese claim to be in possession of a treatment for hydrophobia not like Pasteur's, which reduced the mortality to one per cent."

Dr. George Kober's translation of Dr. Max Bartel's work states: "Whilst many deny that our North American Indians possess any therapeutic knowledge, it is nevertheless true that in *suppurative and sloughing wounds* the Shaman prepares a decoction of willows, and by blowing it either directly from his mouth, or by use of a reed, he thoroughly cleans the wound, and thus employs, whether knowingly or not, I do not pretend to say, an antiseptic solution, the active principle of which we all know is salicylic acid; moreover, the Dakotas, in suppurating wounds, not infrequently introduce drains made of the bark of trees, and also em-

ploy a primitive syringe made from an animal bladder and a quill."

My own observation leads me to believe our Indians do use remedies and employ surgical treatment among their sick and injured, in many cases intelligently, and not as a result of magic or Shamanism, although the latter greatly prevails in their management of patients.

"Attempts to close wounds with sutures are not infrequent. Schoolcraft refers to some of our Indian tribes who employ sutures made of sinew or tree bark which are permitted to remain until after the sixth day. The natives of South Australia resort to compression, and the Winnebagos never permit ugly wounds to heal by first intention, but keep them open, so as to heal from the bottom."

It must not be forgotten that savages, like their civilized brothers, acquire knowledge by contact with an enlightened race. The missionaries, explorers, traders and the army may be responsible for some seemingly advanced medical and surgical treatment in sickness and injuries in our country among the Indians.

"According to Wolff, the negroes of Ollango treated a gunshot wound of tibia quite skillfully by means of a grass splint, made of swamp grasses, extending above the knee and below the malleoli, securing the immobility of the fragments, leaving a fenestrated opening for the escape of discharges. Mincopies dress gunshot wounds with leaves. Samoans remove a spear head by a counter opening, and pull the missile through. To control hemorrhages, eagles' down, vegetable styptics, sometimes in conjunction with compression, the spongy part of an old cocoa-nut; in Morocco, circular compression, and also hot pitch, if necessary; primitive tourniquets are used in the South Sea Islands, in conjunction with a native fabric made of the paper mulberry tree.

"The North American Indians, in *violent* nose bleeding, stuff the nostrils with hot pulverized charcoal." For epistaxis, some savages apply cold to the scrotum. The Mincopies treat skin diseases with a large heated flat stone. The Indians in Southern California treat primary ulcers of syphilis with a live coal.

The Creeks and Winnebago Indians get fair results from their method of treating fractures, as compared with other savages. South Australians use a clay splint. They straighten the limb and apply the clay splint, which finally hardens. Bartel mentions

the case of a fractured femur where "there was no perceptible lameness or shortening," and also a fractured jaw treated successfully by a clay mask.

My own observation has been, our Indians do not as a rule obtain good results in the treatment of fractures. I saw them use a slat splint in one case of fracture, and in a fractured humerus they wrapped something soft around the arm, and then applied two pieces of rawhide over this, encasing the arm and extending a few inches above and below the seat of fracture. They then tied the splint on. The splint used resembled two hemispheres, with flanges at each end.

Schoolcraft states that the Indians do not know how to treat strangulated hernia, while in the reducible variety they use suitable bandages. Many primitive people do not know how to treat hernia. Some use hot irons. In Morocco trusses are used. The natives of India operated on stone in the bladder but which resembles the European method of a hundred years ago. "The finger is introduced into the rectum and the stone pressed against the perineum. An incision is made over the protruding part, and after dividing the walls of the bladder the stone is removed by means of forceps." Corre states the Fullahs of Rio Nunez extirpate the cervical glands.

I was told *by the Indians*, and also a *Catholic priest*, that an *Okanagan squaw* operated successfully for cataract in days gone by. This was about in 1879 or 1880 when I heard of this woman operating on eyes. *I doubt the diagnosis* for the following reasons: Pterygium was very common on the Columbia, Colville, Spokane, Okanagan, and other rivers of that locality from 1879 to 1886, when I left Chewelah. I have seen pterygium on both eyes, generally on the inner side toward the nose, and also on one eye; then again, double on both eyes. This no doubt was the condition operated upon by the Indian oculist. Bancroft refers to an operation on an Okanagan Indian, where the abdomen was laid open and a large quantity of fat was removed. The Indian operating closed the wound with stitches.

A Chippewa Indian performed *Caesarean section* successfully on his wife. Felkin in Uganda, Central Africa (Dr. George Kober's translation of Dr. Max Bartel's work, etc.), describes Caesarean section he witnessed in that country.*

* See also "Histoire des Accouchements Chez Tous Les Peuples," G. J. Witouski, page 621.

"The woman, a primipara, aged 20, was placed upon a reclining couch, and after a partial stupefaction by means of banana wine, she was secured across her chest to the bed with a broad bandage made of bark fiber. Another bandage secured her thighs, the ankles being held by an assistant. A second assistant stood on the right side of the bed and fixed the abdomen, whilst the operator, with knife in his right hand, stood on the left side of the bed. After murmuring some incantation, he washed his own hands and the abdomen of the patient with some banana wine, and subsequently with water.

"He uttered a shrill note, which was answered by the multitude without, and made his incision, reaching from the pubis to the umbilicus, dividing the abdomen and uterus with one stroke of the knife, so that the amniotic fluid gushed forth. All the bleeding points in the abdominal wall were promptly touched by an assistant with a red-hot iron. The operator quickly enlarges the uterine incision, whilst an assistant held the wound apart, and when the uterine opening was sufficiently enlarged, he extracted the child, which was given to another assistant, and the umbilical cord was promptly divided.

"The operator now laid his knife aside, and rubbed and pressed the womb with both hands. He also introduced his right hand into the uterine cavity and dilated the cervix with two or three of his fingers, and then removed the placenta and blood clots through the abdominal wound. In the meantime the operator endeavored to secure firm contraction of the womb, while the assistant cautiously applied the actual cautery to all bleeding points, and another assistant was kept busy trying to prevent protrusion of the intestines.

"The uterine wound was not sutured. The assistant relaxed his hold of the abdominal wound, which was covered with a porous grass mat, and the patient was lifted up and partly turned upon her side to permit of free drainage of the abdominal cavity, after which she was gently placed upon her back, the mat removed, and the abdominal wound closed by means of seven slender but well-polished nails, resembling acupressure needles, and a twisted suture made of vegetable fiber. The wound was covered with a thick paste, made from the chewed pulp of two different roots, over which a warm banana leaf was laid, and the whole secured by a firm bandage made of Mbugu fiber.

“The woman bore the above operation without complaint, and one hour afterwards rested very comfortably. Felkin reports that the temperature on the second evening was 101, and the pulse 108. The child was put to the breast two hours after the operation. On the third morning the dressings were removed, and a few of the needles; the remainder were taken out on the fifth and sixth days. There was very little pus, which was removed by means of a spongy pulpa, and on the eleventh day the wound had entirely healed.” Ovariectomy is practised amongst savage people.

Operations on males to produce a *mika man* is an interesting procedure in Australia. Dr. J. G. Garson furnishes us with an account of this operation and custom. An artificial hypospadias is produced.

“On Corpus Christi Creek, Western Australia, the natives content themselves with making a small incision through the urethra, immediately in front of the scrotum. Through this opening the semen is ejaculated during copulation after the wound is healed.

“Second.—On the Diamantia and Lower Georgiana the natives divide the urethra in front of the scrotum and again just below the glans penis, then cutting longitudinally along each side, dissecting it out.

“Third.—The most general plan of mutilation is that which I show you in a photograph. It is performed by placing a narrow piece of wood along the dorsum of the penis and drawing the loose skin tightly backward over the wood. A flint knife is then inserted into the orifice, and the urethra is laid open to the scrotum. Before the operation is performed the penis is beaten till it is benumbed. After the operation the penis is bandaged against the abdomen; should excessive inflammation of the wound occur during the healing process, it is dressed with a kind of native clay or crushed eucalyptus leaves. The mortality after this operation is stated to be *nil*.

“A man seizes the prepuce between his thumb and forefinger and, stretching it to its fullest extent, while the headman of the tribe transfixes it with a flint knife of lancet shape, sharpened on both sides, cuts it off with one circular sweep. After cessation of hemorrhage it is dressed with soft down or eagle's hawk feathers.”

The Mylagordi Method.—Divide the prepuce by four longitudinal incisions and dissect each segment backwards "to the butt of the penis," removing each separately. "In the northern territory the prepuce is scored with a flint knife and then dressed with irritating herbs so as to produce hypertrophy of the parts." Operation is done for cleanliness, etc. You can well imagine a picture of those operated upon after healing, when the penis is in a state of erection.

The method to make women barren in Australia to a certain extent is called *Eureltha*. Dr. Garson states in his article in regard to these Australians that they operate on girls at the ages from ten to twelve years. They make a roll of emu feathers from seven to eight inches long, being thicker at one end than the other. It is tied tight around with twine made of opossum fur, and daubed with fat and red ochre. To the small end a cord of human hair "is attached, looped over it," being "brought down to the thicker end" of the roll. She is placed on her back; the thin end of the roll, with loop, is introduced into the vagina. Then a flat piece of stick is passed into the vagina along the side of the roll, and the loop at the upper end is placed around the end of the cervix uteri and tightened slightly. After a considerable period of time, and when the parts have become swollen, the operator, who is an old man or woman, twists the cord around his or her hand, and the portion of the cervix uteri within the loop is forcibly severed and drawn out with roll and loop.

After three weeks a small flint knife attached to the end of a stick, six inches long, is passed into the vagina. A vertical and transverse incision is made into the stump of the cervix uteri. The incisions are packed "with duck or eagle's hawk's down" to keep them open. "Lumps of heated fat are now inserted to grease the parts and keep them clean." After the healing of these wounds, "the lower end of the posterior wall of the vagina is divided down to the anus," * * * "in order that sexual intercourse with the mika man may be more easy." Dr. Garson states that only a few Australian tribes practise this operation in Central Australia. These women who have been operated upon are called "dindahs" or "dindees."

I have thought it best to place the following bloody, puberty ceremonial under the head of cosmetic surgery, as scars are admired by some savages. Lubbock states, "Among the females

on the Murray, the only ceremony of importance with which Erye was acquainted was that of scarring the back. Erye, indeed, calls it tattooing, but "crimping" would, I think, be a more correct expression. It takes place at the age of puberty, and is extremely painful. The woman kneels down and places her head between the knees of a strong old woman, and the operator, who is a man, cuts the back with a piece of shell or flint in rows of long, deep gashes from left to right quite across the back and completely up to the shoulders. The whole scene is most revolting; the blood gushes out in torrents and saturates the ground, while the cries of the poor victim gradually rise into screams of agony."

This is a voluntary act on the part of the female, and shows what tortures women will endure to become envied by their own sex; beautiful and beloved as savages, and even as civilized women in our own era and country, in order to attract the opposite sex.

Deforming the Heads of Living Children.—The Bari people compress their children's heads in front of the ears, which "increases the height along the sagittal suture." The Monbuttu barbarians bandage the heads of their infants of the ruling family, "so as to lengthen the horizontal axis." Some of the natives of the island of Mallicolo "have elongated deformation caused by the pressure in infancy of a pointed cap." Our American Indians have also a similar custom of flattening the heads of infants. I have heard Hudson Bay Fur Company men say many of these infants belonged to the chieftain class. Deforming the skulls of the living was practised during Hippocrates' time, 460 B. C., and was also observed by Strabo and by Attila's Huns, even to the present time in Roumania. Flattened skulls due to mechanical pressure are to be seen among the aborigines of South America and Oceanica.

Suicide in China.—Suicide is often of a surgical nature as well as medical, it being a form of murder, as is too often the case, when a man places himself in the hands of an inexperienced operator. Therefore I classify suicide under the head of surgery. Among the Chinese self destruction is common. The means employed are opium or gold-foil eating, drowning, cutting the throat and cutting out the tongue, and thus they shuffle off this mortal coil. The cause, "a common form of melancholic insanity, is the Scythian disease of Hippocrates, due to the loss of virility

and often complicated among the people of the Caucasus, Thibet and Japan with zoanthropia." The Japanese sends you a weapon to disembowel yourself with, and he does likewise.

Circumcision on Male and Female.—This is almost a universal operation, being performed by various tribes and races, is of the greatest antiquity, and males in the past have been operated upon for different reasons. Prof. McGee suggests as one what might be considered the theory of the evolution of clothing, showing the picture of a naked savage, having a string around his waist, attached to and extending along the penis and around the foreskin. In the course of time by heredity, etc., *i. e.*, in future generations, the foreskin became enlarged, a nuisance, and was cut off. This theory is open to objections, one being why do they today still use this mode of dressing? And why not circumcise when a baby, thus avoiding holding the penis and prepuce with a cord?

The Egyptians of the era of Rameses II, 1370 B. C., practiced this rite, also the Jews and other races, both in the past and present. There is in Egypt an old ruin. The upper part of the sculpture is destroyed, but the lower part shows the operation under discussion as performed in ancient times.

The Manyuena circumcise a slave first before operating on a chief's son. After a Dieri boy has been circumcised a rope of human hair taken from the men, women and children is wrapped around his waist. The Kaffir boy after this operation is allowed to seize any married woman and have sexual intercourse with his captive. The foreskin of the Arunta boy after this ceremony is swallowed by his younger brother to "strengthen him and make him grow tall and strong." "The blood is rubbed over his elder sisters and they cut locks of his hair."

"When the Egyptian boy is circumcised, at the age of five or six, he parades the streets, dressed as a girl in female clothes and ornaments, borrowed from some lady. In front of him also a school friend walks, evidently taking his place as a 'proxy,' for he wears round his neck the boy's own writing tablet. A woman sprinkles salt behind the boy to counteract 'the evil eye.' That is doubtless the reason why he is dressed as a girl."

Dr. Remondino gives the following interesting account: "Among the Gallinas of Sierra Leon the clitoris of the young maid is excised at midnight, while the moon is full, after which they receive their name." A man intruding upon this ceremony would be

killed. In Egypt and Arabia a society of Mussulmen circumcise young girls at the age of seven years, and this consists in excising the clitoris by means of scissors or pincers, as is the case at "Mos-soul." A grown woman who has been educated abroad, on the birth of her child is also operated upon. Excision of the clitoris at puberty occurs amongst the Amakosa, Loanda, Masai and Wakusi tribes. In Australia girls are always excised at the age of puberty.

The Monbuttu tribe west of Unyoro, many miles, circumcise men and women, and also cut out a "piece of the concha." Another authority states that in central Africa, the operation for ablation of the clitoris and labia minora is performed. We have read of the so-called Hottentot apron, which is said by some to be operated upon. In East Africa the labia majora, and part of the mons veneris are excised. The Gallas amputate the breasts of male children soon after birth, in order to keep them from becoming weak in body or effeminate.

Trephining.—In the ancient burial grounds of the Palaeolithic or Archaeolithic age of Lubbock, and also the more recent stone age of Europe, called Neolithic, were found several fractured skulls, some of which had been trephined—thus proving the operation to have been quite common during the last period mentioned—the polished stone age. In the cave of Cro Magnon, M. Louis Lartet, a celebrated paleontologist, found a female skull, the frontal bone of which showed a wound "in the process of healing," caused by a flint weapon. A Danish dolichocephaloid skull of the stone age was found by the elder M. Lartet, which had been pierced by a spear. A fractured parietal bone, with flint axe sticking in it, was discovered in a cavern at Chauvaux, Belgium.

Dr. Prunières obtained from the interior of a dolmen, a skull which had been trephined in childhood, and the adult skull was found to have been trephined a second time. The piece of bone in this case, after death, measured seven inches long and five in the widest part. Many trephined skulls have been taken out of dolmens, and the pieces of bone which had been removed at the time of operation, were sometimes within the calvarium, or laid beside the skull. No doubt, they made with a flint knife, a T-shaped incision before operating on the bone. Broca states that the bone

was scraped through, and the disk removed. Occasionally two or three openings were made on the same subject.

Dr. Prunières has twenty skulls which had been trephined, and all recovered but one, amongst these pre-historic people. It is wonderful how successful the prehistoric surgeon was, considering his often filthy surroundings, crude instruments, methods of operating, surgical treatment of wounds, and the usual careless way in which uncivilized men take care of their sick and wounded. So far as present discoveries seem to indicate, they seldom lost a patient.

Out of these crania amulets were made ; the fragment of bone was circular, or of other shapes. These ornaments were talismans to protect the person from evil spirits in this world and the departed soul in the next. The posthumous amulets always had a piece of the " cicatrized edge of the original opening " attached to the bone of which they were made. This fact proves beyond all dispute that the individual had lived a long period after the operation.

The earliest history of remote ages is full of statements concerning certain nervous diseases called demons, evil spirits, etc. Such cases were either convulsions, delirium, epilepsy or madness, due, no doubt, to various causes incident to the modes of life of individuals so afflicted. Sometimes these diseases were considered sacred, and at others viewed with superstitious awe, the family supposing that a devil possessed the sufferer's soul. The primitive surgeon treated these cases by trephining, in order to allow the demon to escape from the living person through the opening in the skull. Possibly they operated on the dead for the same reason. As epilepsy, and particularly convulsions, is common enough among children, this fact would seem to account for the frequency of the number of children's skulls that have been trephined. *I believe that this operation, in many cases, was performed by these primitive people to remove the bone pressing on the brain, and not always to let out the devil.*

Savages have some intelligence, and even reasoning powers, based on surgical and medical experience. They may do many things that are foolish, but no more so than our ancestors, with their " Wound Salve," etc. Amongst the ancient inhabitants of the Canary Islands, " The Mound Builders of America," the oldest tribes of Mexico, of South America, and in the dolmens of Alge-

ria, Africa, and, no doubt, Asia, to say nothing of the sunken continents, of Atlantis, off the African and Spanish coasts, and in Lemuria, off the coast of Africa and Asia, where tradition says our race once dwelt, the operation of trepanning, at some advancing period of the race, toward a higher and more enlightened civilization, was frequently resorted to in order to cure disease, and relieve brain pressure due to a fractured skull. *Therefore, from evidence given, trephining is the oldest surgical operation of any magnitude that was performed by man. In fact, it can be said to have been universally adopted in all ages, past as well as present, as a recognized operation for the relief of diseases, and injuries of the skull and its contents.*

If you take any interest relative to the earlier history of trepanning and age of the skulls mentioned, I refer you to the writings of Broca, N. Joly, the Lartets, Dr. Prunières, Lubbock, Fletcher, Figuier and others. The antiquity of this operation was hoary with age before the ancient traditions of the Egyptians had been born. It might be questioned, in speaking of the stone age of Europe, during which this surgery was performed, and in some cases said to have been trepanned after death, as *an erroneous assertion. In some instances the specimen may represent unsuccessful cases dying during or immediately after trephining.*

We have considered only one side of this operation of trepanning, that solely relating to antiquity, and it is well to investigate the surgery of the skull in our own era. Trephining is practiced in the Loyalty Islands, and Samuel Ella says it is a common belief there that headaches, neuralgia, vertigo and other head symptoms are the result of a crack in the skull or pressure upon the brain, and to relieve this condition they make a T-shaped incision over the scalp down to the bone, and scrape the calvarium with a piece of glass until the dura mater is reached, the opening being the size of a silver dollar. "Sometimes the operation in the hands of an inexperienced operator, or in consequence of impatient friends, is extended to the pia mater, and the patient dies in consequence. As it is, about fifty per cent. prove fatal. But owing to superstition this barbarous custom has become so prevalent that half of the adult population are seen with a hole in their skull."

Ella adds that he had been informed that sometimes they reduce to a suitable size and thickness a piece of cocoanut shell, which they polish very highly, and place over the opening in the

skull to protect the brain of the patient. They formerly used a shark's tooth in operating. Usually they operated near the junction of the sagittal and coronal sutures. "George Turner confirms these observations, and says whilst the mortality is great the curative effects are well marked." Their results compare favorably with those of the older surgeons prior to the antiseptic era.

The Karaya Indians, of Brazil, use sharks' teeth for extracting splinters, etc. The Haussa of Northwest Africa use a primitive iron forceps in their surgery. The Colville Valley Indians, Spokanes and Kalispels poultice abscesses, whilst the medicine man of Lower California opens them by suction with his mouth. It may be well to pause and state that before the Civil War an old Virginia physician carried an old negro along with him to suck boils and taste the stools of his patients.

The Frazier River Indians and the negroes of Victoria incised the part with iron or bone knives. The inhabitants of Tahiti, Samoa and Tonga open abscesses and boils with fragments of shell, flint, glass, large thorns and shark teeth. The Dyaks of Borneo use a wooden knife. Carbuncles are treated by the Kirghis, according to Pallas, by making "numerous punctures and by the application of tobacco and ammonia." Corre "saw the Fullahs of Rio Nunez treat an ulcer by compression with a sheet of native copper."

"Castration appears to be a favorite treatment in hydrocele and orchitis, especially among the natives of Tahiti, Samoa, Tonga and Loyalty Island." *

Moore saw a native doctor at Radschputana apply a red-hot iron over an injured hernia. A savage of the Loyalty Island operated upon himself for a strangulated hernia, and died as a result of operation. While bathing in Brazil, in rivers, a small fish is liable to get into the urethra, and the natives remove this animal by external urethrotomy.

Customs Relating to the Prepuce.—Those who take interest in the religious customs relating to the use of the prepuce should read Remondino's work on circumcision, the chapter, "Miracles and the Holy Prepuce." The Indians pass a ring of gold, silver or iron through the foreskin, welding the ends together. In speaking of infibulation, Dunglison mentions that "the prepuce was first drawn over the glans, and that the ring transfixed the

* Dr. George Kober's translation.

prepuce in that position ; that the ancients so muzzled the gladiators to prevent them from being enervated by venereal indulgence."

Infibulation was practised by the early Christian Monks of Greece and Asia Minor. When the Hindoo takes the vow of chastity, he wears a ring, attached to his penis; the ring sometimes measures six inches in diameter. During the reign of Antiochus, Jews, who desired to be sexually, in appearance as those men around them, wore a copper instrument, of funnel shape, a tube in which they carried the virile member. Martial called it *Judaem Pondum*. The idea was to lengthen the foreskin, so as to cover the glans penis. The results were failures. According to Remondino, St. Paul refers to this operation in his Epistle to the Corinthians—

"Was any one called being circumcised, let him not be uncircumcised."

Emasculation, castration and eunuchism are of surgical interest. Mythology informs us that Uranos was successfully emasculated by his youngest son, Saturn, using, in this operation, a sickle made from a bright diamond. "As the members fell into the sea, and in the foam caused by the commotion from their contact with the element, Venus was born. Meanwhile, the blood that dripped from the wounded surface caused the giants, the furies, and the Melian nymphs to spring into life." Uranos was the first king of the now sunken continent of Atlantis, the first eunuch, and a god.

The famous beauty, Queen Semiramis, is quoted as being the first to use eunuchs as servants and letting them hold high positions of trust. Bergmann, of Strasburg, calls attention to the ancient tradition that the hyena instructed man in the operation of castration, because this animal, fearing rivals, castrated the young male hyenas. The Skoptsy, a Russian religious sect, castrate themselves. The Mahommedans, of India, use a sharpened razor and remove all the genitals. The bleeding is controlled by the application of herbs and hop poultices. Hemorrhage kills one-half of the victims.

Dr. Morache, in the Dictionnaire Encyclopedic des Sciences Medicales,* describes the operation as follows: "The patient, be he adult or child, is, previous to the operation, well fed for some

* Chinese method of operating.

time. He is put into a hot bath. Pressure is exercised on the penis and testes in order to dull sensibility. The two organs are compressed into one packet, the whole encircled with a silk band, regularly applied from the extremity of the base, until the parts have the appearance of a long sausage. The operator now takes a sharp knife and with one cut removes the organs from the pubis. An assistant immediately applies to the wound a handful of styptic powder, composed of odoriferous raisins, alum and dried puff ball powder (boletus powder).

"The assistant continues the compression till hemorrhage ceases, adding fresh supplies of the astringent powders; a bandage is added, and the patient left to himself. Subsequent hemorrhage rarely occurs, but obliteration of the canal of the urethra is to be dreaded. If at the end of the third or fourth day the patient does not make water his life is despaired of. In children the operation succeeds in two out of three cases; in adults, in one-half less."

Eunuchs were made of prisoners of war by the ancient Egyptians, and by the Caribs when Columbus landed in America, and also previous to his time. At different periods the Romans, Spaniards, Britons and Poles castrated men for rape. In the earlier ages men who sang in choirs in the churches were castrated, in order to change their voices. The Coptic Monks have a eunuch factory.

"The little, helpless and unfortunate prisoner or slave is stretched out on an operating table; his neck is made fast in a collar fastened to the table, and his legs spread apart and the ankles made fast to iron rings; his arms are each held by an assistant. The operator then siezes the little penis and scrotum, and with one sweep of a sharp razor removes all the appendages. The resulting wound necessarily bares the pubic bones and leaves a large, gaping sore that does not kindly heal.

"A short bamboo cannula or catheter is then introduced into the urethra, from which it is allowed to project for about two inches, and no attention is paid to any arterial hemorrhage; the whole wound is simply plastered up with some haemostatic compound, and the little victim is then buried in the warm sand up to his neck, being exposed to the hot, scorching rays of the sun.

"The sand and soil is tightly packed about his little body so as to prevent any possibility of any movement on the part of the child, perfect immobility being considered by the monks as the

main element required to promote a successful result. *It is estimated that 35,000 little Africans are annually sacrificed to produce the Soudanese average quota of its 3,800 eunuchs.*"

These eunuchs sell from \$750 to \$1,000 a head. Hammond speaks of eunuchs among the Indians of New Mexico and Arizona. The Scythians often became eunuchs as a result of riding bareback. Some of the ancient heathen priests soaked the scrotum in hot water, and by gentle and firm friction, in the course of time made the testicles disappear. The ancients used several methods of operating. Remondino says: "From the removal of *all* the genitals, or the penis alone, or the scrotum and testicle, or removing only the testicles, down to compression or to distorting the spermatic vessels." *The possibility* of a bad fitting bicycle saddle, under certain conditions, and if not properly adjusted, and constantly used for a long time, day after day, *may affect the sexuality of the male*, in the same way horseback riding affected the ancient Scythian.

According to Paulus Aegineta, in making eunuchs of boys, the mortality was very small. Among the Turks, according to Chardin, three out of every four operated upon died. Clot Bey states that two out of three died. Bisson says the mortality was nine out of ten. St. Alphonsus M. Liquori said that men were not saints, and a man was a fool who allowed his daughter to take music lessons from any man other than a eunuch.

Pope Clement XVI abolished the practice of emasculating boys for church choirs, etc. Napoleon the First did likewise secularly and socially. This custom of emasculating men was practised in China during the reign of the emperor Yeu Wang, 781 B. C. Very often eunuchs are made mutes by operating on the tongue, and are much preferred.

The Effects of Syphilis on the Negro Race.—Dr. J. Wellington Byers, in an article entitled "The Influence of Race and Nationality upon Disease," states: "Darwin and Boriuss assert that the negroes of Madagascar are exempt, while the Hovas, of the Malay race, are frequently and seriously affected. There seems to be some ground for the popular notion that syphilis contracted from Mongolian blood by Europeans is particularly noxious, as all examples of such prove very intractable." Then he quotes from Dr. Livingstone:

"A certain loathsome disease which decimates the North Amer-

ican Indian and threatens extirpation of the South Sea Islanders dies out in the interior of Africa without the aid of medicine; and the Bangwas, who brought it from the Welsh coast, lost it when they came into their own country, southwest of Kolobeng. It seems incapable of permanence in any form in persons of pure African blood anywhere in the interior of the country. In persons of mixed blood it is otherwise, and the virulence of the secondary symptoms seemed to be, in all cases that came to my care, in exact proportion to the greater or lesser amount of European blood in the patient. Among the Corannas and Griquas of mixed blood it produces the same ravages as in Europeans. In half-blood Portuguese it is equally frightful in its inroads upon the system, but in the pure negro of the central part it is quite incapable of permanence."

Fritsch, in commenting upon this opinion of Livingstone, says, that "syphilis is very rare in Bechuana Land; only in scattered cases, mostly imported from Cape Colony, though there are materials with which to controvert the assertion that this disease does not hold good with pure Ethiopian blood.

"That this disease does attack the negro in a mitigated and less virulent form than it does the white and other races appears probable from past experiences in this country. The last census shows the disparity; and from my own personal observation the disease is far less formidable in the negro, and is readily cured by appropriate treatment. It certainly, upon the whole, pursues a milder course, there is less damage to the system, and there are fewer lesions of any kind."

Savages have various methods of treating syphilis; roots, herbs, minerals, mineral waters, baths and massage they also employ to relieve pains.

Rubbing with the hands is used both in savage medicine and surgery, as no doubt this method is of the greatest antiquity. Dr. A. F. A. King states that Adam, having eaten the forbidden fruit given him by Eve, was that night seized with a violent colic. Eve, in her blushing innocence, used massage over Adam's abdomen. Possibly, I may add, this may throw some light on the dark side of history relating to the subsequent events—the birth of Cain and Abel. Adam was an anatomical curiosity, it is stated, in not having a navel, *for he had no use for one, not being born of a woman.*

In the writings of a Chinese writer, Kong Fu, 700 B. C., "a full description of medical gymnastics and massage as practiced at that time" is described. "The Hindu Vedas, or Books of Wisdom," contain paragraphs showing "gymnastics and massage were well known" in ancient times in India. The Phoenicians, Persians, Egyptians of old, and ancient Greeks used massage. Hippocrates advocated the use of massage, and "other physicians of ancient Hellas." The ancient Romans borrowed it from the Greeks, and it was used by the Latins in conjunction with their baths.

Fevers belong not only to the field of medicine, but also to the domain of surgery. *Rome had a goddess of Fever. The old-time surgeons and physicians used powerful drugs and bleeding in the treatment of fever and other diseases. So did the savage of the past, as well as of the present.*

Transfusion of Blood.—The following quotation may be of interest, and, on the part of the assertion of the author quoted, rather startling, from a medical point of view. It is copied from a medical journal quoting from a paper in another medical periodical: "Transfusion, which is transmission of the blood of one animal into the circulation of another, was practiced centuries before the birth of Christ, yet why this should have been done when the circulation of the blood was not understood is hard to explain." It might be asked if this fact *was not an interpolation occurring in an old medical work, having been inserted there during our era.* Some authorities claim interpolations of recent origin have been found in ancient Hindu medical books.

Pages upon pages can be written on the subject of savage surgery. We only, as a rule, compare the extremes, but the dividing line is not so well marked. Man at his best is a veneered savage. Many of the men of our times are but little removed from the wild men of the verdant forests, the hot-blooded son of the golden sands of the desert, the stalwart dweller of the clift and mountain, the cultivator of the fertile plains and the lords of the gems of the emerald isles, surrounded by the deep blue sea, whose music on the shell-girdled shores lulls them each night into a sweet repose. The so-called semi-civilized man of Northern Africa uses trusses in the treatment of hernia, yet he is a savage. The subject I have presented for your consideration is of the greatest interest to me, and I hope of like interest to you. The

history of medicine is of the greatest importance, and so is that of surgery. The poet says :

" Know then thyself, presume not God to scan.
The proper study of mankind is man."

Dr. Battle, with reference to Dr. Morgan's statement that among savage races the physicians were surgeons and the surgeons physicians, said that it would seem that we were returning to primitive days, because today six-tenths of the physicians were either surgeons or thought they were surgeons or hoped to be surgeons. He had heard of applying cold to the scrotum for chordee, but never for epistaxis.

Dr. Hrdlicka had spent the larger part of five years among the Southwestern and Mexican Indians, and during this time he had made many interesting observations. The Indian's conception of the causation of disease was different from our own. They believed in the main that disease was brought on by witchcraft or the ill-will of some spirit. The Zunis, when there were many deaths, were liable to light upon some old, friendless victim, and, unless he confessed his witchcraft, whereupon he was banished from the tribe, tortured him to death. The killing of medicine men who had had unfortunate results from their remedial practices was not rare. He brought to New York with him the skeleton of one of these medicine men, a Pima, who had been killed thirty years before. It seemed that in this tribe five consecutive deaths was the limit for one medicine man. Among the Yumas a similar custom prevailed. Quite recently a Yuma medicine man who had lost several patients was condemned to death. He escaped to Mexico, but subsequently returned, and that was the last ever heard of him. Some Indians had considerable knowledge of poisonous plants and antidotes.

As to the management of postpartum conditions : The Apache squaw, after confinement, went into the bushes and ran about violently until hemorrhage ceased. The idea was to "get the blood out." Among the Tarahumaris (Chihuahua) the woman went into the water after confinement and bathed there. The child was not bathed until after eight days. Septicemia was not rare. In postpartum hemorrhage, incantations failing, the Opatas dipped a rag in hot mescal and inserted it into the vagina. The production of artificial abortion was common. To effect this purpose the woman most often leaned against a sharp rock or other object, bringing pressure to bear upon the abdomen, or she pounded the abdomen or took medicines.

Fractures were less frequent among the Indians than among civilized races. The fracture usually healed without difficulty or much deformity. The sucking of abscesses was occasionally practiced. In 1892 there were two cases of castration for rape among

the Tarahumaris. Peyote was a remedy supposed to cure about everything. It was even applied over fractures or, chewed up, to wounds. Trephining was, and according to Mr. Bandelier, who just returned from that country, still is practiced among the Peruvians. Coca was probably used as an anesthetic. In over nine-tenths of the known instances of trephining among the Indians of this country healing took place. In the tribes which Dr. Hrdlicka visited tertiary symptoms of syphilis were rare and mild. Rachitis and scrofula among the pure bloods were practically unknown.

Dr. R. S. Lamb. speaking of syphilis among prehistoric peoples, said that at the meeting of the British Medical Association in 1897 a pair of shins, showing signs of syphilis, were presented. They had been dug up in Florida. Among the early Egyptians a surgeon who operated successfully on cataract was paid by the government; if he failed, he was paid a certain sum, and lost the hand which did the operation.

Dr. Kober said that he believed the Indian method of treating syphilis was superior to our own; the cases improved faster, and recovery was more complete. He was not familiar with the treatment, except that it consisted in the administration of decoctions and vapor baths. As a rule their treatment was based on witchcraft, and the object in most cases was to extract the "evil spirit" causing the disease, but some of their ideas were entirely rational. For instance, he was once called to attend a chief's daughter, who had been bitten by a rattlesnake. He found that they had constricted both the base of the thumb and the arm, and the constriction was kept up until his arrival. Suction had also been applied to the wound, after which a dressing of herbs was applied. At another time he was called to attend a woman who had attempted suicide by the use of wild parsnip. He found the medicine man heating the blade of a cheese knife and applying it in a very rational attempt to restore consciousness.

Dr. Morgan, in closing the discussion, said that it was not his intention, in presenting his paper to the Society, to discuss the evolution of savage medicine, nor of the North American Indian, but only to refer to some facts regarding savage surgery. He had read an authority, who stated, that the ancient physician of India, who could only point to one grave in a burial ground, was of little importance, but he that could point to a score or more graves, was one of experience, an eminent man, possessing the confidence of the community in which he resided.

REPORT OF THE EXECUTIVE COMMITTEE OF THE
MEDICAL SOCIETY OF THE DISTRICT
OF COLUMBIA.*

Your Executive Committee begs leave to submit the following report relative to certain legislation now pending in Congress and more or less closely related to public health and to the medical affairs in the District of Columbia :

There are pending in the Senate two bills for *preventing the adulteration, misbranding and imitation of foods, beverages, candies, drugs and condiments* in the District of Columbia and the Territories, and for regulating interstate commerce therein, and for other purposes. One of these bills (S. 198) originated in the Senate and at the request of the Commissioners, based on the recommendation of the Health Officer, contains, as reported by the Senate committee, all such amendments as have been deemed necessary to fully protect the interests of the District. The other bill (H. R. 6295) is similar in its purport but contains no such amendments; its enactment in its present form jeopardizes, it seems, all food legislation heretofore enacted for the protection of this District.

It is recommended that the Medical Society indorse the legislation represented by Senate bill 198 as against that represented by H. R. 6295.

There are pending in the Senate two bills to provide for the *abatement of nuisances in the District of Columbia* by the Commissioners of said District, and for other purposes. These bills (S. 2131 and H. R. 6289), the latter, of course, already enacted by the House, are substantially the same. The purpose of these bills is to provide a method by which, when property belongs to a non-resident, or the owner for any reason cannot be taken into court, the Commissioners may abate such nuisances as exist thereon and assess the cost against the property.

Your Committee believes that this legislation should be enacted in the interests of public health.

There is now pending in the Senate and House of Representatives a bill to authorize the *apprehension and detention of insane persons in the District of Columbia*, and providing for their temporary commitment in the Government Hospital for the Insane, and for other purposes (S. 2880 and H. R. 8692).

While your Committee finds that the purpose of this legislation is laudable, it believes that the legislation as it now stands is objectionable in certain particulars, and recommends that the executive committee be authorized to secure, if possible, amendments with respect thereto.

A bill to create a board for the *condemnation of insanitary buildings in the District of Columbia*, and for other purposes, is now

* Reported and adopted January 27, 1904.

pending in the Senate (S. 3155) and in the House of Representatives (H. R. 9293). The House Committee on the District of Columbia has already reported favorably on this measure. The purpose of the bill is to provide a method for the enforced improvement or destruction of insanitary buildings in this District.

Your Committee believes that this legislation is necessary in the interests of public health, and should be enacted.

There is now pending in the Senate a bill to provide for a *commission to examine into the sanitary conditions of the various Government departments* (S. 3469). The purpose of this bill is, to a certain extent, explained by its title. It provides, however, in addition to the purpose therein specifically stated, for certain inquiries relative to the incapacity of clerks by reason of age, a matter which your Committee does not believe is properly within the purview of the Medical Society. Your Committee does, however, believe that a proper inquiry into the sanitary condition of the various public buildings, many of them erected years ago, would be in the interests of the health of a very large number of citizens in this District and, therefore, recommends that the Medical Society indorse such legislation at least in so far as relates to the sanitary condition of public buildings.

A bill for the *further prevention of communicable diseases in the District of Columbia* (S. 3786 and H. R. 10955) is now pending in the Senate and House of Representatives. These bills require persons in charge of cases of certain of the minor contagious diseases to report such cases to the Health Officer. The attending physician, when there is one, is required merely to notify the family of its obligation to so report. There is no provision for the placarding of houses, and isolation and disinfection may be required only in so far as the particular case warrants.

Your Committee believes that this legislation is in the interests of public health, and recommends its favorable consideration by the Society.

The attention of the Society is invited to the fact that the enactment of the pending appropriation bill for the District of Columbia, in its present form, will probably have the effect of severing absolutely the relations between the *physicians to the poor* and the only medical department of the District Government, the Health Department, and of putting those physicians absolutely under the control of a lay board, the Board of Charities. The service rendered by the physicians to the poor is purely medical, and should, it is believed, be subject to proper medical supervision and direction; these physicians should not be directly responsible to laymen. Your committee believes, therefore, that the best interests of the community, as well as of the profession, demand that physicians to the poor shall not only be appointed as at present, on the recommendation of the Health Officer, but that they should operate under his supervision, the Health Officer

being responsible to the Commissioners and the community for proper medical attention to the sick poor. It believes, moreover, that the present organization of the service for the out-of-door relief of the sick poor is incomplete, inasmuch as these physicians to the poor are not properly supplied with laboratory facilities. A suitable clinical laboratory should be established and maintained to render to physicians to the poor necessary aid in the diagnosis of tuberculosis, malarial fever, and other diseases, and in the examination of urine, etc., and to render similar service to the Washington Asylum Hospital, which is a purely medical branch of the District Government and insufficiently equipped with facilities of that kind.

Your Committee recommends, therefore, that the views herein expressed be brought to the attention of the proper committees of Congress, and that it be urged that such legislation as may be enacted be so framed as to carry them into effect.

It is recommended that the Executive Committee be authorized to further in all proper ways the enactment of such of the foregoing legislation as receives the indorsement of the Society.

The Executive Committee requests that an appropriation be made of \$7.88 for typewriting during the year 1903.

Your Committee now has under consideration a bill to secure sanitary dairy products for the District of Columbia (S. 2402), a resolution of the House of Representatives relative to progress on the filtration plant (Resolution No. 90), and bills to regulate the sale of poisons in the District of Columbia (S. 3673 and H. R. 4837). Recommendations with reference to these measures will be reported as soon as circumstances warrant such action.

Respectfully submitted.

SAMUEL S. ADAMS, *Chairman*.

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Stated Meeting, Monday, January 4, 1904.—The President, Dr. George M. Kober, in the chair; 78 members present.

The Treasurer read the names of members who were delinquent in the matter of dues for the last two years.

All of the delinquents were vouched for except Drs. Watkins and Roane, whose resignations had been offered.

Upon motion of Dr. S. S. Adams, the dues of members who were out of the city and holding commissions in the Army, Navy or Public Health and Marine Hospital Service were remitted.

Applications of the following candidates for active membership were referred to the Board of Censors: Dr. Chas. M. Beall, Columbian University, 1900; Dr. Taylor B. Dixon, Columbian University, 1900; Dr. Almer M. Hoadley, Columbian University,

1902 ; Dr. Henry A. May, Columbian University, 1899 ; Dr. John J. Repetti, Georgetown University, 1897 ; Dr. W. W. Richardson, University of Pennsylvania, 1902 ; Dr. B. Rosalie Slaughter, Women's Medical College of Pennsylvania, 1897 ; Dr. J. C. Tappan, Columbian University, 1899.

The Treasurer's twenty-ninth annual report was read and referred to an Auditing Committee, Drs. Woodward and Hammett.

REPORT (CONDENSED).

Received from Initiation fees,	\$111.00	
Dues,	1,164.00	
Interest,	26.64	
	<hr/>	\$1,301.64
Expended for Salaries and fees,	420.00	
Publishing ANNALS,	622.20	
Reprints,	80.27	
Printing, &c., for the Secretaries,	270.83	
Miscellaneous,	88.50	
	<hr/>	\$1,481.80
Balance on hand,	\$1,676.44	
Unpaid dues,	704.00	

Members dropped for non-payment of dues, 2 ; resigned, 1 ; died, 6 ; present membership, 353.

The following officers were elected for 1904 : President, Dr. C. W. Richardson ; Vice-Presidents, Drs. Louis Mackall, Jr., and Franck Hyatt ; Treasurer, Dr. C. W. Franzoni ; Corresponding Secretary, Dr. T. C. Smith ; Recording Secretary, Dr. F. P. Morgan ; Librarian, Dr. E. L. Morgan ; Board of Censors, Drs. D. Olin Leech, Deale, Wall, Moran and F. R. Hagner.

The usual annual assessment of \$4 was ordered.

President Richardson was elected Vice-President of the Washington Academy of Sciences, to represent the Medical Society.

Dr. D. S. Lamb's proposed amendment to the Constitution, as follows : " That wherever it is now provided that the result of a vote shall be determined by a count of the *members present*, the phraseology shall be so changed as to provide that the result shall be determined by a count of the *votes cast*," was discussed by Drs. S. S. Adams, D. S. Lamb, F. P. Morgan, Chappell, McCormick, Hughes, A. F. A. King, Franzoni, Bovée and Woodward ; after which Dr. Lamb was requested to indicate the exact changes in the phraseology of the various sections of the Constitution and Bylaws which the adoption of the proposed amendment would necessitate.

An appropriation of \$36.54 for publication of the November number of the ANNALS was ordered, and a vote of thanks was

given to the Editing Committee for creditable and efficient work in connection with the publication.

A vote of thanks was also extended to the officers of 1903 for the able and efficient way in which they had discharged the duties pertaining to their several offices.

The Society then took a recess until January 13th.

Stated Meeting, Wednesday, January 13.—The President, Dr. C. W. Richardson, in the chair; 45 members present.

Dr. D. S. Lamb's proposed amendment to the Constitution was discussed and the Society considered *seriatim* the sections that would be altered by its adoption.

Art. IV, Section 2, was amended to read: "The officers shall be chosen from the active members, and a majority of the votes cast shall be necessary for a choice."

Art. V, Section 2, was amended, striking out the words "members present," and substituting the words "votes cast."

Art. V, Section 3, was amended by striking out the words "an affirmative vote of at least," and also "members present," and substituting the words "votes cast."

Art. V, Section 4, was amended by striking out the words "members present," and substituting the words "votes cast."

Art. VI was amended by inserting between the words "two-thirds" and "vote," the word "affirmative;" and striking out the words "of the members present."

Art. VII was amended by striking out the words "members present," and substituting for them the words "votes cast."

Section X of the By-laws was amended in the last sentence by substituting for the words "an affirmative vote of two-thirds of the members present," the words "the concurrence of two-thirds of the votes cast."

Section XIII of the By-laws was amended, as follows: In the sentence relating to "the order of business at any regular meeting," strike out the words "an affirmative vote of two-thirds of the active members present," and substitute the words "the concurrence of two-thirds of the votes cast." Likewise, in the sentence relating to "the regular business of the stated meetings," strike out the words "an affirmative vote of two-thirds of the members present," and substitute for them the words "the concurrence of two-thirds of the votes cast."

The sections of the Constitution and By-laws, as altered, were then adopted as a whole.

The Stated meeting then adjourned, and the Regular meeting of the same evening was opened by President Richardson.

President Richardson resigned his membership on the Executive Committee. Resignation accepted.

The President announced the appointment of the following committees for the year 1904:

On the Executive Committee, Drs. W. C. Woodward, D. P. Hickling, and Z. T. Sowers. To fill the vacancy created by the resignation of Dr. C. W. Richardson, Dr. G. M. Kober.

Committee on Public Health : Drs. J. W. Chappell, Chairman ; Frank Leech, J. M. Wellington, G. W. Wood, R. S. Lamb, W. M. Sprigg and Anne A. Wilson.

Committee on Essays : Drs. T. C. Smith, Chairman ; T. N. McLaughlin and D. K. Shute.

Committee on Editing the Transactions : Drs. D. S. Lamb, Chairman ; W. A. Wells and V. B. Jackson.

Committee on Microscopy : Drs. J. B. Nichols, Chairman ; Collins Marshall and D. W. Prentiss.

Committee on Directory of Nurses : Drs. H. L. E. Johnson, Chairman ; Ada R. Thomas and Monte Griffith.

Dr. Hrdlicka announced that an Anthropometric Laboratory, fitted with necessary appliances, had been established at the National Museum, and invited members of the Society to use it when they wished to do so.

He also stated that there was need of specimens of normal brains, and embryological material, and asked members to donate to the Museum specimens of the kind which fell into their hands.

The Executive Committee was instructed to inquire into the relationship existing between the Medical Society and the Washington Directory for Nurses, and report to the Society.

The resignation of Dr. Victor E. Watkins was accepted.

The following cases and specimens were presented :

By Dr. Chadwick : Anencephalous Monstrosity.

By Dr. D. S. Lamb : Monstrous Puppy : Triocephalus.

Dr. C. W. Richardson read the paper of the evening, "Laryngitis Hypoglottica." Discussed by Drs. Deale, S. S. Adams, and Butler. See page 1.

Wednesday, January 20.—The President, Dr. C. W. Richardson, in the chair ; 44 members present.

The Auditing Committee reported that it had examined the Treasurer's accounts, and found them correct.

Dr. Nash said that an effort was being made to erect a monument to the memory of Dr. Walter Reed. He spoke of a meeting last Summer, when the various national medical societies, under the leadership of Dr. Gilman, acted favorably upon the suggestion. He moved that the Chair be authorized to appoint a committee of three, to confer with similar committees from other societies for the furtherance of the project. The motion was carried.

An invitation was extended to Dr. W. W. Keen, of Philadelphia, to read a paper before the Society on any Wednesday evening in March that would suit his convenience.

The following cases and specimens were presented :

By Drs. Acker, Hickling and D. S. Lamb : Meningitis. Discussed by Drs. Smith, Chappell, D. S. Lamb and Acker. See pages 7, 9, 10.

By Dr. D. S. Lamb : Cerebral Hemorrhage. See page 52.

Dr. Joseph T. Howard read the essay for the month. Subject, Animum. See page 17.

Dr. Lamb's case of *Acute Leptomenigitis* involved more especially the convexity of the brain, the base not being affected ; dura adherent to skull. From a colored man age 40 who was admitted to hospital unconscious and died next day ; temperature 103 to 105, pulse 80 to 104, respirations 28 to 40. The only history obtained was that he had been sick four days. He had a small superficial abscess on the right side of the thorax which was opened by the hospital interne and discharged some pus. The only other lesion found at the necroscopy was a large, flabby heart with atheroma of valves and ascending aorta. The infecting germ was not identified.

Wednesday, January 27.—The President, Dr. C. W. Richardson in the chair ; 65 members present.

Dr. D. S. Lamb, for the Editing Committee, reported that the sixth number of the ANNALS, 1903-4, had been issued. It covered a period up to January 1, and was larger than previous issues, containing 140 pages. An appropriation of \$238.09 was ordered to cover the expense of its publication.

Upon motion of Dr. S. S. Adams, the Treasurer was granted an appropriation of \$7.88 to meet the expenses of the Executive Committee for 1903.

Dr. S. S. Adams, for the Executive Committee, read a report, which was adopted. See page 74.

The Chair appointed the following committee to confer with similar committees from other societies as to the erection of a monument to the memory of the late Dr. Walter Reed : Drs. F. S. Nash, G. Wythe Cook and A. F. A. King.

The following cases and specimens were presented : By Dr. J. Taber Johnson, Old Fibroid Tumor. Discussed by Drs. Reyburn, James Stuart, I. S. Stone and J. Ford Thompson. See page 12. By Drs. Karpeles, D. S. Lamb and I. S. Stone, Salivary Calculi. See page 14.

Dr. J. S. Wall read the paper of the evening. Subject : "Empyema in Children." Discussed by Drs. Acker, Reyburn, S. S. Adams, Barnes and J. Ford Thompson. See page 36.

Wednesday, February 3.—The President, Dr. Richardson, in the chair ; 48 members present.

The Treasurer reported for January as follows : Received—

Interest on deposits, \$14.91; assessments, \$176.00; total, \$190.91. Disbursed—MEDICAL ANNALS, September and October, \$36.54; typewriting, Executive Committee, \$7.88; MEDICAL ANNALS, November and December, \$238.09; total, \$282.51.

The Corresponding Secretary and the Secretary of the Executive Committee were authorized to have printed appropriate letterheads and envelopes for the use of the Executive Committee and the Society.

A letter from the Washington Academy of Sciences was read, asking certain information with a view to "working out a plan whereby the labor of sending notices and attending to the various administrative details of the several scientific organizations of Washington might be performed by one paid officer." The Treasurer was authorized to furnish the information.

A letter from Dr. Arthur MacDonald was read, requesting the coöperation of the Society in furthering the passage of a bill "to establish a laboratory for the study of the abnormal classes at Washington." Referred to the Executive Committee.

The following cases and specimens were presented :

By Dr. D. S. Lamb : 1. *Multiple Subpericardial Hemorrhages*.—The specimen was the heart of a man 21 years old, who, after having been sick for a week with pains in the lower part of the abdomen, was taken to hospital. Was then semi-conscious, with a temperature of 99.4 to 105, pulse 98 to 100, respiration 60 to 64. The high temperature showed that there was some infection, and the frequent respiration, that the lungs were probably involved. He died next day. At the *post mortem* examination Dr. Lamb found recent pleurisy and broncho-pneumonia on both sides. The spleen was soft, but not enlarged. The surface of the liver showed numerous irregular pale spots, apparently areas of necrosis. Under the pericardium were multiple hemorrhages. These hemorrhages were not the small spots called *Tardieu* spots, so commonly found in death from excessive dyspnoea, but the larger spots found in infections of high grade accompanied by high temperature, such as bubonic plague, where they were especially marked. In this case the infecting germ was not identified, but was probably the pneumococcus.

2. *Hypertrophy of Heart*.—*Due to interstitial nephritis*.—The heart weighed 18½ ounces, about one-half enlarged. It was otherwise apparently normal, except for some fatty patches on the ascending portions of pulmonary artery and aorta. The specimen was from a man, age 56, who fell out of his wagon; was taken to hospital unconscious and had left hemiplegia; was catheterised and urine found to be 1010 and quite albuminous. He died in five hours after first seizure. The *post mortem* examination showed a large hemorrhage in each cerebral hemisphere extending to the base. The lungs were congested and there was some bronchial exudate in the left. Liver fatty. Kidneys showed

interstitial inflammation. Prostate enlarged and bladder distended with urine.

Discussed by Dr. Claytor.

3. *Parasites in Heart of Dog*.—The parasite was the *Filaria Immitis*, a thread worm. The specimen was the heart of a setter dog 8 or 9 years old that had indigestion, jaundice, hydrothorax and ascites. The heart was much enlarged, weighing 14 ounces, and the cavities were stuffed with worms. The liver of the dog was cirrhotic. This was a very interesting parasite. The name, *Filaria Immitis*, as also the name *Filaria canis cordis*, was given by Prof. Leidy, of Philadelphia. The French called it the *cruel* filaria. It was found mainly in the heart, but also in the circulation and sometimes in the stomach and connective tissues. It had been found in the fox, and it was even said to have been found in the human subject, but this was doubted. The worm was first recognized in 1679 by Panchot. The embryos were also found in the blood, and had been known to pass from the maternal to the fetal circulation. Like the human *filaria sanguinis* they were found more numerous in the peripheral circulation at night than in the day. How the larvae found access to the dog was not yet determined. The worm was common in China and Japan. It was said that nearly all the dogs in China were infected, and about 50 per cent. of those in Japan. In the rest of the world the parasites were much less often found. Hunting dogs were mostly affected, and the larger dogs preferably to the smaller. The worms in the circulation interfered with the movement of blood, causing hypertrophy and dilatation of heart, endocarditis and thrombosis. The usual symptoms were anemia, weakness, cough, jaundice, ascites, &c.

Dr. A. F. A. King read the paper of the evening. Subject, "Hydatidiform Mole. Deciduoma Malignum. Chorion-epithelioma Malignum." Discussed by Drs. Jackson and T. C. Smith. See page 25.

Wednesday, February 10.—The President, Dr. Richardson, in the chair, 30 members present.

Dr. Hickling, for the Committee on Smoker, made a report, which was accepted.

The resignation of Dr. Chas. T. Caldwell was accepted.

Applications of the following Assistant Surgeons, U. S. Army, were referred to the Board of Censors: John O. Skinner, retired, Columbia Hospital; Charles Lynch, Surgeon General's Office, and A. N. Stark, 1814 G street, N. W.

The following cases and specimens were presented:

By Dr. Hrdlicka: Series of Cases of Fusion of the Atlas with the Occipital Bone. Discussed by Dr. Battle. See page 34.

By Dr. Vale: Negatives Illustrating the Value of X-ray Photography in the Diagnosis of Pulmonary Tuberculosis. Exhibi-

tion of patient. Discussed by Drs. S. S. Adams, Acker and Chappell. See page 15.

Dr. E. L. Morgan read the paper of the evening. Subject, "Surgical Methods among Savage Races." Discussed by Drs. Battle, Hrdlicka, R. S. Lamb and Kober. See page 54.

Editorial.

The Index of Volume II, 1903, was not ready for the printer in time to appear in the January number of the ANNALS; it has therefore been printed separately and is enclosed in the present number.

The Episcopal Eye, Ear and Throat Hospital will have its formal opening about May 1.

Medical Miscellany.

FIBROMA IN SHAD.—U. S. Bureau of Fisheries.—During the spring of 1903 a dealer in Center Market sent to the Bureau of Fisheries a supposed tumor taken from a shad (*Alosa sapidissima*.) It was nearly globular in form, weighed 310 grams, and measured a little over 10 cm. in its longest diameter. The shad was a 5-pound female in roe, and the tumor was reported to have been "attached and grown to the side of the stomach alongside of the roe." It may instead have arisen from the abdominal wall. It showed some evidence of attachment by its capsule, and there was an appearance of a solid broken stalk which may have connected its mass with the fish. It was of a very firm consistence and invested by a smooth and tough capsule of a pinkish color. The tumor resisted the knife and was cut with difficulty, the section showing a milk-white cut surface and dense masses of fibers. A rod-shaped body, harder than the rest of the tumor, probably of calcareous nature but not true bone, traversed a part of the mass and reached and seemed to be related to the apparent remnant of a stalk.

Microscopically the growth consists of a mass of fibrous tissue, almost without cells. Sections take eosin readily, hemotoxylin scarcely at all. Both macroscopically and microscopically the growth seems to be a fibroma. Fibromata are probably not rare among fishes, but have been little described. In the present case the size is certainly unusual.—M. C. MARSH.

IODINE IN THE PREPARATION OF CATGUT.—**Emergency Hospital.**—In a number of experiments by Drs. Le Merle and White, with a view of establishing the antiseptic point of iodine in one per cent. aqueous solution, the following results were obtained: In the strength of 1 to 1,100, streptococci, in bouillon, will not grow. In the strength of 1 to 4,000, the growth of staphylococci is inhibited. In the strength of 1 to 2,000, colon bacilli will not multiply.

This one per cent. solution was used in the preparation of catgut (the Claudius method, as described by Senn,) and the following tests made: Number 3 catgut was soaked in a bouillon culture of streptococci two days, then transferred to the iodine solution for eight days, the iodine washed out in sterile water and finally placed in bouillon. No growth appeared. The process was repeated with the hay bacillus and staphylococci with identical results. Catgut which had been placed in a culture of strepto-

cocci was left in the iodine solution four days, then introduced into the peritoneal cavity of a guinea pig and the intestine scarified. There were no ill effects, with prompt recovery. The tests made with the staphylococcus and hay bacillus were equally satisfactory. The catgut contains, when prepared by this method, about one-fourth of a grain of iodine to the foot. It has proven to be strong, ties firmly, is absolutely sterile and deserves all the commendation it has received at the hands of the German operators.

CHARLES S. WHITE.

Eastern Dispensary and Casualty Hospital.—The Board of Lady Managers is busily engaged in securing funds to purchase a lot on which to erect a new hospital. The work of this hospital has been and is still growing so that a larger and more fully equipped one is now a necessity. The great number of public works in progress in the neighborhood of the hospital will, without doubt, be attended with accidents and diseases which will in all probability seek aid from the nearest institution. This fact alone will increase the work to be done in the hospital in the near future, and is one of the many good reasons that argue for a new one.

Mr. Gorny, 4th year Columbian student, was appointed to fill the vacancy of assistant resident caused by the resignation of Mr. Harrington.

Report of work for the year ending June 30, 1903: Patients receiving first treatment, 2,023; number receiving further treatment, 1,372; number refused further treatment, 651; number of prescriptions compounded, 8,477; number of redressings, 3,419; number of revisits, 6,324; number of operations, 165.—C. R. DUFOUR.

Washington Asylum Hospital, Training School for Nurses.—The Training School for Nurses, in connection with the Washington Asylum Hospital, and the Central Dispensary and Emergency Hospital, although young in years and not so widely known as it might be, is nevertheless doing a double good work: first, in the thorough training in their profession which it gives to its pupils, and second, in the skilled care which, through its instrumentality, is given to the sick among the city poor.

The widely different character of the work in the above named institutions gives to the pupils of this school who spend the first two years of their training at the Washington Asylum Hospital and their third and senior year at the Emergency Hospital, the opportunity of caring for almost every disease and accident which can befall humanity; while to give them personal supervision and instruction in their work there are four graduate nurses, two in each institution, besides the superintendents of the school.

In theoretical training the pupils are given the prescribed course

of lectures by well-known physicians of the city, a course in massage, and one in dietetics.

Each pupil, if possible, before she goes in the wards is assigned to duty at the "Nurses Home," where she is taught house-keeping, including the care of linen, furniture, etc.

During their junior year the nurses act as assistants in the wards of the Washington Asylum Hospital; during their second year they act as senior nurses in wards containing anywhere from twenty to thirty-five patients, with two or three assistants, and a ward maid or an orderly, while during their senior year they are taught the care of private patients, and are instructed in all lines of special work, thus giving them an equipment which will enable them to take up any work open to them in their profession.

D. PERCY HICKLING.

Opening of Providence Hospital.—The Sisters of Charity in charge of the Hospital opened the institution to public inspection Tuesday, March 15, in the afternoon and evening. They were assisted in dispensing their hospitalities by the Medical Board and Board of Visitors. Fully 5,000 persons inspected the new hospital buildings. An orchestra was in attendance, and a buffet luncheon was served. Many ladies, friends of the institution, were present and assisted in the reception, materially adding to the success of the occasion. Addresses were made by Cardinal Gibbons, congratulatory on the completeness of the hospital; Hon. Wm. H. Taft, Secretary of War; Dr. J. W. Bayne, the President of the Medical Staff, spoke for the hospital; Surgeon General Sternberg, U. S. A. retired; H. B. F. Macfarland, the President of the District Commissioners; Senator Stewart, of Nevada; Hon. J. G. Cannon, Speaker of the House of Representatives; congratulating the Sisters on their good work in Washington and throughout the United States. Among the visitors were persons prominent in social, official and public life all over the United States. The city of Washington is to be congratulated on the completeness of the new hospital, supplied with every known convenience for the care of the sick and injured.—T. N. VINCENT.

Health Department, District of Columbia, Washington.—*Typhoid Fever.*—During the quarter ending March 31, 1904, 83 cases of typhoid fever were reported to the Health Department. During the corresponding period of last year the number of cases so reported was 160. At the end of the quarter the total number of cases under treatment was 45, while the corresponding number for 1903 was 65. The relative fatality of the disease is indicated by the fact that of the 18 cases reported in the month of January of the current year 4 have died, equivalent to 22 per cent., while of the 84 cases reported during the month of January, 1903, 6 terminated fatally, equal to 7 per cent.

Scarlet Fever.—Scarlet fever has been more prevalent during the past three months than it was last year. The number of cases reported during the quarter was 166 as compared with 34 reported during the corresponding portion of 1903. The number under treatment March 31 of the current year was 43, while the number under treatment on the corresponding date of last year was but 7. Of the cases reported during the month of January, 1904, 1 died, equal to 2 per cent., while among the cases reported during the corresponding month of 1903 there were no deaths.

Diphtheria.—The number of diphtheria cases reported during the quarter just ended was 80. The number reported during the corresponding quarter of 1903 was 137. The cases on hand March 31, 1904, were 12, being exactly the same number as were under treatment March 31, 1903. Of the cases of diphtheria reported during the month of January, 1904, 5 died, while of those reported during the month of January, 1903, 3 died, equivalent to 17 per cent. respectively.

Smallpox.—There were reported during the quarter ending March 31, 1904, six cases of smallpox, all of which had recovered before the expiration of the quarter. The number reported during the corresponding period of 1903, was 25, and March 31 of that year there were 5 cases still under treatment.

W. C. WOODWARD.



WASHINGTON MEDICAL ANNALS

A STUDY OF HEADACHE IN RELATION TO DISEASES OF THE NOSE AND NASOPHARYNX.*

BY OSCAR WILKINSON, A. M., M. D.,

Washington, D. C.

Headache as a symptom in nasal and nasopharyngeal diseases dates back to the incipency of rhinology as a specialty. To no one man does the glory of properly diagnosing these headaches belong. It was a gradual development, following a more perfect knowledge of the anatomy of these parts and the invention of more efficient instruments by the use of which such cavities might be examined.

For the head-mirror, or reflector, and the small laryngoscope we are indebted to a number of men, each of whom did more or less to develop these valuable aids. The first of these was M. Levret, a French gynaecologist, in 1743. It was a half century after him before Dr. Bozzini, the next who used reflectors, caused a sensation throughout Germany by announcing his invention for illuminating the various cavities of the body. Twenty years later we see Dr. Senn, of Geneva, and still a few years later Dr. Babington, of England, gradually improving on the former instruments. These were still improved upon by Garcia, a Frenchman, and still more by Türck, of Vienna, but it was left to Professor Czermak, of Pesth, to perfect these instruments in 1857, and hand them down to us almost as we have them today. Rhinology as a specialty might be said to have had its beginning from that date; though it did not attain a conspicuous position in the profession till several years afterward.

The minute anatomy of the naso-pharynx was not known until about the middle of last century. Some books published on

* Read before the Medical Society of the District of Columbia, February 17, 1904.

rhinology as late as 1880 do not illustrate or mention all these cavities. We are indebted to Dr. Zuckerkandl, of Vienna, for a more perfect knowledge of the anatomy of the nose and especially of the accessory sinuses. (See *Med. Jahrb., Wien*, 1880.) He probably did more original anatomical work in the pneumatic nasal cavities than any other early investigator. His book, published in 1882, on the physiology and anatomy of the nose and pneumatic cavities, would be a credit to a modern author.

With these few historical remarks I will pass to the subject proper, *i. e.*, Headache in Relation to Diseases of the Nose and Nasopharynx.

I have handed out a few sheets on which I have made a classification of the diseases of the nose and nasopharynx which produce headache. The first of these, as you will observe, is "Morbid Conditions of the Mucous Membrane;" under which heading we have acute and chronic rhinitis, and as sub-divisions of acute rhinitis we have simple, specific and neurotic.

There are few conditions with which we are more familiar than with acute coryza, with its almost constant symptom, headache. Many of us have grown painfully familiar with it from frequent personal attacks. Morell Mackenzie, Seiler, Sajous, Hack and many other early writers noted this constant symptom. Even Galen, writing in the second century, noted it; he says in Lib. 13, "For the most part, either a cold or moist distemper doth vitiate the head." It was not until about 1880 that the writers on headache in general medicine mentioned headache in relation to nasal diseases. Dr. Weatherhead, in his "Treatise on Headach," published in 1841, does not mention a headache of nasal origin; however, he does give as the exciting cause of headache, under the title of "Rheumatic Headach," "Exposing the head to a draft of cold, damp wind; riding in a carriage with window down; sitting under skylight with head uncovered and in state of perspiration, etc." All of which conditions we know are conducive to acute coryza. Copeland, in his *Encyclopedic Dictionary* of 1845, does not mention headache of nasal origin, except in the frontal sinus.

The associated symptoms in acute rhinitis are, chilly sensation of the body; stuffy, full sensation in nose and front part of head, associated with more or less obstruction of the nasal canals; a burning dryness, followed by acrid watery discharge. These

symptoms are so common, constant, and so annoying that the patient, no matter how ignorant, can make his own diagnosis.

Headache and coryza are often the first symptoms in some of the febrile diseases; but the conditions are so similar in each case, regardless of the cause, that they are not diagnostic, and we must wait for after symptoms to help us out. I will, with these remarks, dismiss the subject of acute rhinitis, feeling that headache, as one of its most constant symptoms, is too well known to deserve further discussion.

In *specific* rhinitis, in its incipency, we have the symptoms of acute simple rhinitis, but of decidedly more exaggerated form. There is more pain, more headache, and greater constitutional disturbance. This is especially true in the glandular, gonorrhoeal and diphtheritic types. The other specific rhinitic conditions, tuberculosis, lupus, leprosy and larvae, may vary very much in their symptoms in different individuals. In some they are decidedly acute while in others they are chronic. Headache is not so constant a symptom in chronic cases. In the acute forms, however, headache is almost always a prominent symptom and may be due to two causes: first, a local condition due to obstruction of the nasal canal from inflammatory changes; second, a constitutional condition due to infection from the bacteria present.

The associated symptoms in these specific conditions are so prominent and the pain so constantly localized that the physician's attention is directed at once to the source of irritation. His final diagnosis is made by the use of the microscope. This valuable aid is sometimes unnecessarily deferred. However, the diagnosis of gonorrhoeal rhinitis was made, and very probably correctly so, long before our knowledge of bacteria or the modern microscope. Boerhaave reports a case in 1751, Sigmond in 1852 and Edwards in 1857.

We come now to the *neurotic* type of acute rhinitis. Under this heading we have placed hay fever, asthma and hyperaesthetic rhinitis.

The symptoms of hay fever are those already enumerated in acute coryza, the difference being in the less febrile symptoms, the longer duration of hay fever, lasting during a period of two or three months, and its tendency to recur annually at the same time of the year. It is especially the more annoying in that

there is so little relief from the stuffiness and head symptoms for so long a period. The symptoms are so constant and so similar in different individuals and recur with such exactness each year that the diagnosis is usually made, and various means for relief tried before we see these patients. Hay fever, like influenza, is so often claimed when not present that its diagnosis should be made with more care than is customarily used. A few years ago it was quite popular to call every slight coryza influenza, and this same tendency has caused the laity to call each unduly prolonged attack of cold, hay fever.

I hope I may be pardoned for digressing enough here to mention the experimental work done by Dr. Meyer, of New York, and Dr. Alex. McCoy, of Philadelphia, with Dr. Dunbar's anti-toxine serum in hay fever. Dr. Meyer's reports were flattering, but Dr. McCoy's were so very good as to be almost incredible. I hope to be able to give it a trial next hay-fever season.

The modern rhinologist feels that he has been robbed of his own if he examines an asthmatic's nose and finds no polypus, no deflected septum, stenosis, spur or sensitive area acting as an exciting cause. The first symptom of an asthmatic paroxysm is usually that of a cold: sneezing, watery discharge from the nose, nasal stenosis, headache. The stenosis becomes worse, mouth breathing is necessary, and the paroxysm is complete.

There are two forms of headache in asthma to which I would like to invite your attention. The first is rather acute and often severe, due to pressure in the nasal canals from stenosis. The second form is a dull, languid headache, which occurs after a night spent in wrestling with an asthmatic attack. This condition is probably due to the character of the inhalation which has been used to relieve the paroxysm. It is also probable that the loss of sleep and a night spent in a close, stuffy room are in part responsible. I now have under my care a young lady whose first symptom of an asthmatic attack is a frontal headache, and last winter I had under my care a law student who was an asthmatic and who had been in the habit of burning certain pastilles for relief, which always caused him to have a headache on the following day.

Hyperaesthetic Rhinitis.—Hyperaesthetic rhinitis, by most authors, is classified as hay fever; but there is a series of symptoms in hyperaesthetic rhinitis which, while related to the hay-fever

type, are distinctly different from it. In hay fever we always have a stuffy and more or less stenosed nasal canal, while in hyperaesthetic rhinitis this is not at all necessary. We may have sneezing, a peculiar dry aching sensation, hydrorrhoea without stenosis. The special diagnostic point in these hyperaesthetic cases is the test with the applicator. By passing the cotton-covered end of the nasal applicator into the nose and gently touching the different areas we will find what is known as the "sensitive areas," areas which when touched set up a violent fit of sneezing or coughing, or cause a frontal headache. Great credit is due to Hack, of Paris, for his work along this line. He has probably done more than any other man to call our attention to these nasal reflexes and head symptoms in hyperaesthetic rhinitis. Before dismissing this topic we feel that we must mention the work of Morell Mackenzie and Lennox Browne, of London, and Bosworth, of America.

We now wish to direct your attention to *chronic* rhinitis as a factor in producing headache. Under the head of chronic rhinitis we have hypertrophic rhinitis, and atrophic rhinitis, fetid and non-fetid.

Hypertrophic rhinitis, next to simple acute rhinitis, is the most frequent cause of catarrhal headache, and its symptoms are so constant and so well understood that it is seldom mistaken for any other condition. Here we have more or less nasal stenosis, usually worse at night or in a recumbent posture, which stenosis is unduly exaggerated with the least exposure to cold drafts or sudden changes of temperature, and associated with this is more or less mucous discharge with a dull, heavy, frontal headache. This is a condition so well known both to the general practitioner and to the specialist that its further discussion does not seem necessary.

Under the head of *atrophic* rhinitis I have mentioned the fetid and non-fetid forms. That there are two forms of atrophic rhinitis may be questioned, but this classification seems appropriate for our purpose.

It has been my experience that we have very little headache due to true atrophic rhinitis (fetid), and when headache still continues in these conditions, after the nasal vault has been cleansed of all crusts, etc., I usually suspect some one of the sinuses to be at fault. The case is different in non-fetid atrophic

rhinitis. Here we not infrequently find headache, and often it is very annoyingly persistent. If there happens to be present any rhinologist who has practiced in a high and dry region he will, I think, be ready to agree with my remarks. I have seen in high and dry arid altitudes a drying and parching of the nasal and post nasal mucosa, in cases in which the nasal canals were unduly patulous, to such an extent that the mucous membrane would crack open, as it were, causing minute fissures which are exceedingly painful, and headache was a most constant symptom. In these patulous nostrils where the middle turbinate happens to be deflected into the middle of the nasal canal, I would be disappointed to find an absence of head symptoms. I have now under my care a lady with a too patulous nose, and associated granular pharyngitis caused, she claims, from a too free use of the galvano-cautery some ten years ago, who has as a first symptom of cold a frontal headache without stuffiness of the nose.

We sometimes see reported reflex headache due to adhesions or cicatrix following the use of the galvano-cautery; fortunately the above is as near such a case as I have met, and I think we will see fewer of these in the future, as the specialists have grown more conservative in the use of the cautery in the nose.

Rhinitis *caseosa* is the last named topic under this heading, and its name tells what it is. We have here a cheesy-like deposit in or about the middle meatus. It may be due to diseased conditions of the middle turbinate, but it is more probably due to a chronic diseased condition of one of the sinuses, especially of the ethmoid cells. It is fortunately a rare condition, as its treatment is usually tedious and often operative.

"Morbid conditions of the osteo-cartilaginous frame work" are fruitful sources of nasal headache. Under this heading we have deflected septum, thickening of septum, pressure of the septum, exostoses, synechiae and caries.

Deflected septum causes headache in two ways: by a stenosis of one side of the nose, causing pressure on the turbinates with a compensatory stenosis of the other side. In the second place, a stenosis of one side with a too patulous opposite side with middle turbinate directly in its channel. These malpositions of septum and turbinates are conducive to catarrhal changes both in nose and nasopharynx, with their varying reflex neuroses. It is

in these conditions that we expect to find those "sensitive areas" so well described by Hack and Bosworth.

Thickening of the septum produces its symptoms by obstructing the nasal canals and pressure on the turbinates, and it is here that we usually find the exostoses and synechial. Lennox Browne has reported in his latest book a number of cases of reflex headaches relieved after removing exostoses, and others where relief was obtained after operations relieving synechia.

Pressure on the nasal septum is given as a cause of headache. It would probably be more correct to say turbinal deviation and septal pressure. As a rule, the middle turbinate is at fault here, as it is certainly more sensitive than the inferior turbinate. Where there is undue pressure on this turbinate, whatever the cause, we may expect some reflex symptom. I have noticed for a long time that in those cases where there is most suffering from nasal neurosis we find the middle turbinate blocking up the upper nasal canal and resting against the septum; and I am inclined to think that the septal pressure is not always necessary to cause the reflex headaches. I have seen a number of cases in which the turbino-septal pressure did not seem to be so much at fault as the position of the middle turbinate. I would certainly expect to find nasal neurosis in cases where the middle turbinates are situated low down and directly in the upper nasal canal. Their position here is such as to catch the offending particles in the atmosphere, and is conducive to a low grade of catarrhal inflammation which begets the hyperaesthetic condition with its various manifestations.

Caries of the osteo-cartilaginous frame work is usually syphilitic; however, it may have its origin in some other constitutional condition. Headache with any manifestation of tertiary syphilis is so common as not to demand any special notice here. We usually get a history of syphilis, and our duty is clear.

Sinusitis.—Headache is almost as constant a symptom in sinus inflammations as is unilateral purulent discharge. This is especially true of frontal sinus affections, and perhaps not less true in sphenoidal and ethmoidal. In many cases headache is so prominent a symptom as to overshadow the real affection, and it is not recognized until many other causes of the head symptoms have been suspected. In inflammation of the maxillary sinus we usually get a unilateral headache—a pain beginning in the af-

fecting maxillary, after affecting the corresponding eye, and extending to the head. The associated symptoms here are usually so much more prominent than the headache that the *casus morbi* is easily recognized.

The acute stage of all these sinus inflammations is much the same. They are as a severe cold with an unusual amount of pain in the head, which localizes itself over the involved sinus. This is especially true of the frontal sinus and the ethmoid. We have less head symptoms in the maxillary inflammations than in the others. Headaches are not prominent symptoms in chronic antrum troubles, but this statement certainly does not apply to any other sinus.

The head symptoms are much the same in inflammation of the ethmoidal cells and of the frontal sinuses. It is a fact that when one is involved the other is usually affected. There is probably less disturbance generally and less headache where the ethmoidal cells alone are involved, and the pain is usually more nasally localized. In frontal sinus inflammation, frontal headache is always present, increased or decreased by posture; worse in mornings, and is associated with supraorbital neuralgia, lachrymation, nasal stenosis, and unilateral purulent discharge. Headache here is often the most distressing symptom, and the one for which we are consulted.

The sphenoidal sinus being so difficult of access, its inflammations are often overlooked. A purulent nasal discharge, not accounted for by the other sinuses, and especially where pus is found high up in the nasal fossa, bathing the posterior portions of the turbinates, and dripping into the naso-pharynx, is a strong suggestion of sphenoidal inflammation. It is very probable that many so-called idiopathic headaches, associated with chronic "incurable" catarrh, have their origin in the sphenoidal sinus.

Of the benign growths of the nose and naso-pharynx which may cause headache might be mentioned adenoids, polypi, syphiloma, enchondroma, papilloma, osteoma and rhinoscleroma.

The last four of these may be dismissed with a few words. They all cause headache, when they cause it at all, either by pressure or stenosis. These are conditions which are so seldom seen as to deserve being only mentioned.

Syphiloma is very much more common, and nearly always associated with headaches. It is not seen in this country so

often, but it is not an infrequent occurrence in such countries as Mexico, where a very high percentage of the lower classes is syphilitic, and a still larger percentage go untreated. Its diagnosis is not usually difficult. It is to be differentiated from malignant growths, and usually a history of syphilis, or other manifestation of same can be obtained; if not, the therapeutic test, or if haste demands, the microscope, can be brought to our aid.

There are two stages in the growth of the polypus in which it is especially liable to cause reflex symptoms, such as asthma, headache, etc. At the very beginning it seems that the polypoid tissue is often extremely sensitive and causes pain and headache. This is particularly true where the polypus arises from a centrally placed middle turbinate. The second stage in which the polypus causes trouble is when it becomes so large as to cause stenosis, pressure and displacement of the normal parts of the nose. When one removes from ten to twenty polypi from the nasal chambers he will not wonder that the patient had headache and other nasal neuroses, but will wonder that he was ever free from them.

In treating of the benign growths which cause headache I have purposely left adenoids, the chief of sinners, to the last. All classes of medical men recognize the baneful effects of these growths. There is no minor operation in surgery so fruitful of good results and so gratifying, alike to the doctor and the patient, as adenotomy. To see one of the little strugglers for breath, shut his never-before closed mouth, straighten up his prematurely humped back, and develop a heretofore unknown mental capacity, after one of these operations, is a great pleasure to all concerned. We feel that this condition is so well known as not to need discussion. The experienced clinician can often make a diagnosis of these cases at a distance. The open mouth, pinched face, narrow front teeth, shallow chest and stooped shoulders, the old face and stunted child, all cause us to suspect this condition. The history of snoring, sleeping with open mouth, nightmare and morning headache, with foul breath accompany this condition. The diagnosis is confirmed by the post nasal mirror, or digital examination.

The malignant growths of the naso-pharynx which cause headache are carcinoma and sarcoma. Headache with malignant

disease of the naso-pharynx may be due to two causes: first, to pressure on nasal membranes from its rapid growth, and, second, a constitutional condition due to the cancer cachexia. These malignant growths most usually originate in the sinuses, and extend to the nasal chambers. There we have some sinus and head symptoms before the nasal canal proper is invaded. When they originate in the nose they cause reflex symptoms early if they are located about the middle or superior meatus; otherwise, they do not. These symptoms are increased, as would be expected, as the growth increases, and more especially when it extends to the meninges.

Foreign bodies in the nose, rhinoliths or extraneous substances, are capable of exciting headache. The rhinolith is usually situated in the middle meatus and is sometimes of enormous size. They usually arise from a lime deposit. However, they may have some small extraneous substance as their origin. They cause headache by pressure on sensitive parts, such as is produced in any form of stenosis. Stenosis and headache being the chief symptoms in this rare disease, its true nature is easily overlooked.

As a rule, foreign bodies proper cause more or less discomfort and unilateral nasal discharge until they are removed. A few years ago a farmer brought his son to me on account of frontal headache and an offensive muco-purulent discharge from the right nostril. On examining this nostril I found the mucous membrane inflamed, so much so as to completely obstruct the nasal canal. After the application of cocaine I was enabled to see a foreign body in the middle meatus, which on removal proved to be a cotton seed. It is needless to say that all symptoms disappeared after its removal. If the foreign body lies in the middle meatus and is large enough to cause pressure between turbinate and septum we are apt to have headache as a result.

Dr. Belt said that the paper was interesting and thoroughly covered the subject. In many cases the nasal symptoms were so prominent that a diagnosis could be made at once. The most interesting cases were those in which nasal symptoms were not prominent, or were absent. Some patients were referred to him for headache thought to be due to abnormality of the eyes, when as a matter of fact the nose, and not the eyes, was at the bottom of the trouble. The turbinates were often enlarged, and though

not enough to interfere with breathing caused reflex headache. Excision of the turbinate frequently gave relief in these cases.

Dr. D. S. Lamb inquired as to the kind of headache referred to by Dr. Wilkinson: was it located in the frontal region, or the occipital, or where?

Dr. McKimmie said that the essay had covered much ground, and we could all agree to much that had been said. He took issue, however, as to "sensitive areas," and also spurs, as a cause of headache. We should modify our views on these subjects. There was no hard and fast rule. Nasal obstruction did not always give rise to headache, nor did enlargement of the turbinates in every case. It must be remembered that there might be a reflex disturbance of breathing when there was plenty of room in the inferior meatus. Inspiration took place largely through the middle meatus, and expiration through the inferior. Spurs projecting so as to touch the turbinates frequently caused no symptoms. Speaking of hypertrophic rhinitis, Dr. McKimmie said that it was strange that so few persons distinguished between a true hypertrophy of the turbinate tissues and the condition known as intumescent rhinitis. The two conditions should be carefully differentiated, inasmuch as treatment should be different in each case.

As to sinusitis. This was not always associated with headache. Disease of the antrum would often remain unrecognized were it not for the discharge. Even frontal sinusitis was not always accompanied by headache. Inflammation of the sphenoidal and ethmoidal sinuses usually gave basal headache. Antral disease might give rise to a headache located almost anywhere.

Dr. R. S. Lamb said that he had hoped that Dr. Wilkinson would tell us how to differentiate between the different kinds of headache. The term "headache" was an uncertain quantity, not definite. All of us found difficulty in differentiating between the different kinds of headache. The fifth cranial nerve was affected in almost all forms, but its distribution was so vast that it was difficult to pick out the exact portions affected. Hence, patients went from the eye specialist to the ear specialist, and in the end it was found that the nose, and not the eye or ear, was at fault. What kind of headache was most often caused by nasal disease?

Dr. C. W. Richardson said that the subject was most interesting. The relationship between headache and nasal disease was often the cause of much thought and trouble. The factors which most often caused headache were the following: 1. Alteration in the course of the air current. 2. Increased pressure in the nasal chambers however produced. 3. Retention of secretion in the cavities that communicated with the nasal chambers. These factors, one or all, might be present without causing headache, but there was very likely to be disturbance of function of some of the

branches of distribution of the fifth cranial nerve if any or all of the factors were present.

Dr. Wilkinson, in closing the discussion, said, in answer to Dr. D. S. Lamb, that it was very difficult to ascribe any definite location to the headache which so often resulted from disease of the nasal chambers. As a rule it was frontal but sometimes basal. While it was true that stenosis was not always followed by headache, it was also true that it was followed by headache as a general rule. He differed with Dr. McKimmie also with reference to headache in sinusitis: there was no sinus inflammation in which one was so apt to find headache as in frontal sinusitis in the acute stage; in chronic cases, headache was not so common. In answer to Dr. R. S. Lamb, Dr. Wilkinson said that the associated symptoms should enable us to locate the trouble.

CASE OF RETROPERITONEAL SARCOMA.*

By EDWARD A. BALLOCH, A. M., M. D.,

Washington, D. C.

W. H. G., white, 29 years old, a patient of Dr. N. F. Graham, was first seen by me in October, 1903. He was a blacksmith by occupation. Both parents died when he was an infant; causes unknown. No brothers or sisters. Until the present illness he has never been sick. Has always had a tendency to "biliousness" and constipation.

Present illness began about July, 1902, with swelling of abdomen, painless in character, and has continued ever since. There has never been any disturbance of appetite or digestion and the bowels have been fairly regular. No jaundice at any time. No marked disturbance of kidney function, except that lately there has been a little delay in starting the stream, and on one or two occasions he thinks there was some blood in the urine.

In January, 1903, had an attack of sneezing, followed by cough and hoarseness. These symptoms have continued ever since, with profuse expectoration and some pain in left side.

Patient was closely questioned as to loss of flesh, but always denied that there had been anything of the kind. After his death, however, it was learned from a relative that there had been a steady and progressive emaciation since the beginning of his illness, amounting in all to 60 or 70 pounds.

* Reported, with specimen, to the Medical Society of the District of Columbia, February 17, 1904.

Status praesens October, 1903 : Appears emaciated. No jaundice. Skin and mucous membranes of good color. Eyes clear. Brain and nervous system normal. Tongue coated in center ; edges red.

Veins of abdomen enlarged. Upper half of abdomen greatly and uniformly enlarged. Umbilicus protrudes. Right side of abdomen somewhat more prominent than left. The outline of the liver can be made out, extending from the free border of the ribs to a point an inch below the level of the umbilicus. The organ is smooth and free from nodules. In left upper quadrant of abdomen is an area somewhat tender on pressure, smooth and resistant, giving the feeling of a cyst or other fluid collection. Lower half of abdomen contains fluid. Urine normal in every way.

Respiration costal in character. Expansion fairly good. Normal resonance over left lung ; hyper-resonance over right. Vocal fremitus increased over right side of chest. Breath sounds faint over left lung. Some expiratory stridor, probably transmitted from bronchi. A few faint, bubbling rales over this lung. Loud bronchial breathing over entire right lung. Has a hoarse cough and marked dyspnoea. Profuse mucous expectoration, examination of which showed it to be free from tubercle bacilli.

Apex beat of heart visible in 5th interspace, one inch inside of nipple line. Area of dullness normal. Sounds normal. Action rapid and weak. Temperature 100. No glandular enlargement anywhere. Bubonocoele right side. Inguinal rings patulous. Pressure edema of both feet and lower part of legs ; also, edema of scrotum with some fluid in tunica vaginalis.

The diagnosis was felt to be obscure. The absence of jaundice, pain and any symptoms pointing to disturbance of the digestive apparatus served to exclude any organic disease of liver, as did also the fact, that while evidently displaced downward, the liver was not increased in size. Malignant disease was thought of, but his repeated and persistent denials of any loss of flesh seemed to negative this diagnosis, as it was not thought possible that malignant disease could exist for eighteen months without perceptible emaciation. The temperature, the progressive enlargement of abdomen and the obscure feeling of a cyst in the left upper quadrant, made the diagnosis of peritoneal tuberculosis, with localized accumulation of fluid in the upper abdomen, the most probable

diagnosis. It was clear that something was pushing the liver downward and forward and the edema showed that there was also pressure on the vena cava. The condition manifestly warranted an exploration at least, and this was recommended to the patient. He at first declined this, but, after waiting two months and finding that he was growing steadily worse all the time, he at last consented.

Operation December 31, 1903. The upper abdomen was very tense, requiring care in making the incision, which was in the upper part of the middle line. As soon as the peritoneum was entered there was an escape of fluid and the liver immediately bulged out of the wound. This organ was found to be normal in size and every other particular. There was no tuberculosis of the peritoneum or any of the viscera, and the exploration was therefore continued to the back part of the abdominal cavity, an incision ten inches long being required before the lower edge of the liver was reached. As soon as this was done and the liver held up, a soft mass was felt behind the peritoneum, filling the space above and behind the liver.

Incision into the mass resulted in a lively hemorrhage. It was manifest that the growth was inoperable and the incision was closed with a great deal of difficulty, as the bulging of the liver, from the release of the pressure on it, made it a hard matter to bring the edges of the incision together. A small drain was left, leading to the point where the incision into the mass had been made.

The patient's general condition and especially his dyspnoea, improved markedly after the operation and the extensive wound healed without incident, although the stitches cut the tissues to some extent. After a week of improvement patient's strength began to fail rapidly and it was seen that his death was a matter of only a short time. January 15, during a hard coughing spell, the wound burst open to the extent of four inches. The liver immediately took advantage of this opportunity to bulge through the opening. It could not be pushed back and the attempt to draw the edges together with adhesive plaster resulted in making an undue pressure on the liver. It was felt that if stitches were put in they would soon cut their way out, owing to the enormous tension on the walls of the abdomen. I contented myself with covering the protruding mass with sterilized rubber tissue over

which a copious sterile dressing was placed. This answered very well. The liver soon became adherent all around the opening, and there was not the slightest evidence of sloughing up to the time of his death, which occurred January 22, from increasing weakness and exhaustion.

The autopsy was made the following day by Dr. W. A. Jack, Jr., under considerable difficulties. It was partial in character and consisted, in fact, of a rapid examination of the abdominal viscera, through the operation wound, and in the enucleation of the tumor. All the viscera were normal. The tumor was everywhere adherent and was situated above and behind the liver, embracing the kidney, but not pressing on the ureter. Numerous large blood vessels ran into it and it was adherent to the vena cava. Thorax not examined. The growth could not have been safely removed by operation. The tumor weighed $7\frac{1}{2}$ pounds.

Dr. D. S. Lamb said that the growth was evidently a sarcoma. This conclusion was strengthened by its position. The fact that it was at least 18 months old, indicated slowness of growth, and much fibrous tissue; in fact the tumor was a fibro-sarcoma.

CASE OF LAMINECTOMY.*

By EDWARD A. BALLOCH, A. M., M. D.,

Washington, D. C.

Charles H. W., 25 years old, machinist by occupation, came under my care at the Freedmen's Hospital, in January, 1904. He gave a history of having been struck by a piece of machinery which fell on him January 14, 1903. The left shoulder and hip were dislocated and the neck was injured. He was in bed for four months, when he was sufficiently recovered to go to work. In August, 1903, he began to have severe pain in the cervical region, which has steadily increased, accompanied by increasing loss of use of right upper extremity.

Patient emaciated and looks ill. Thoracic and abdominal viscera normal. Brain and special senses normal. Complains of severe pain in neck, which prevents his sleeping. Examination

* Reported with specimen to the Medical Society of the District of Columbia, February 17, 1904.

shows that the head is bent forward and is constantly held in that position. The fourth cervical vertebra is prominent and its spinous process seems deflected to the right. The spinous process of the fifth cervical is depressed and is made out with difficulty. The right upper extremity is almost useless. Has no grasp in right hand. Has also difficulty in using the right lower extremity and walks with a shuffling gait. Reflexes abolished. No perversion of sensation detected.

He was kept under observation for two weeks. The pain in the neck was severe, resisting anodynes. There was increasing failure in the use of the upper and lower extremities and patient begged that something might be done for his relief, saying that he could not stand the pain. Pulse and temperature normal.

Operation, January 25, 1904. Upon exposing the vertebrae the laminae of the fifth cervical were found to be fractured and displaced forward. They were removed and the cord exposed. A layer of thickened exudate was found lying upon the dura. This was thought to be the remains of an old clot which had become organized. It was traced upward under the fourth vertebra and was seen to bulge between the two vertebrae. In order to get at it the laminae of the fourth were removed and the exudate stripped off, revealing normal dura. The right lamina of the fourth was found to be fractured through the pedicle and to be loose in the wound and was accordingly removed. The cord appeared normal and the dura was not opened. A small packing was placed in the wound, which was closed, except where the packing came out.

He rallied from the operation nicely and did well for two days, when the pulse began to increase in frequency and to lose strength, and in spite of vigorous stimulation he died on the 30th, apparently from exhaustion.

Dr. D. S. Lamb, who performed the autopsy, said that the cord showed a thickening of the dura at the level of the fourth cervical vertebra; here the cord ended at a sharp angle, just as if it had been compressed and cut off. There was a central hemorrhage at the level of the fifth cervical vertebra, with softening around it. From the findings, one would suspect that there had been loss of motion and sensation below the fourth cervical.

NOTES ON A CASE OF ABSCESS OF THE LUNG DUE
TO THE PRESENCE OF A RIVET ONE
INCH OR MORE IN LENGTH.*

By J. W. CHAPPELL, M. D.,

Washington, D. C.

This evidently unique case is of unusual interest to me and it may prove of some interest to you. For this reason I have thought it worth while to give this brief history as accurately as I can now recall the case, for I am sorry to say I kept no record of it.

P. S., the oldest of four children, a brother and three sisters, was born April 15, 1890, and therefore was nearly 14 years of age when she died. I attended her mother in her first and subsequent confinements and the members of the family in most of the sicknesses they have had.

P. S. had measles followed by the grippe, when she was about nine months old, and subsequently had one or two additional attacks of the grippe. At four and a half years of age she had a severe case of diphtheria followed by paralysis of the throat, and more or less general paralysis, which lasted several months. Some words she never pronounced correctly, due, perhaps, to this trouble. When about nine years of age she had whooping cough in quite a severe form. She had chicken pox and a slight rash, which I did not diagnose as scarlet fever. She had mumps about three weeks before she took to her bed in her last illness, which was August 25, 1903.

January 14, 17, 22, 1903, she called at my office. She had a cough of some duration and slight fever; and while I could detect no positive physical signs of lung trouble, my suspicions were aroused. Previous to this I had called to see her August 16 and 17, 1902, when her father was down with typhoid fever, and when it was feared she might be getting the same disease.

January 31, 1903, I was called to see her at her home, and it was either at this visit or shortly after her calls at my office that I told her father my suspicions in regard to tuberculosis, directed that she be not permitted to attend school again and ordered her to take five drops of creosotol every three hours. I also directed that she be required to sleep in a well ventilated room by herself,

*Reported with specimen to the Medical Society of the District of Columbia, February 24, 1904.

be given an abundance of good wholesome food including milk and eggs, and be kept out of doors as much as possible.

February 13, she called at my office, and February 28 and March 14, I called to see her at her home. I did not see her again until May 17, when she again called at my office. She had improved very much, and it was either shortly before or shortly after this time, that I met her father on the road and he informed me that my patient was all right. By my directions she had been weighed at intervals, and once about this time she gained five pounds in two weeks. She was getting much stouter. I expressed regret to the father that I had not had the sputum examined for the purpose of confirming or not my suspicions that the child had had at least the incipient stage of tuberculosis.

The improvement about this time must have been marked, for the father upon several occasions, after the patient grew worse, expressed regret to me that he had permitted her to discontinue the treatment I had ordered. She called to see me again June 16, and stated that she had been expectorating a little blood for a day or two. This fact strengthened my belief as to the tubercular nature of the trouble. I thought that the reported improvement was only temporary, and such as frequently occurs in this disease.

I am sorry that I cannot give the physical signs that existed at this time or previously. As far as my memory serves me, however, there were no signs I could be absolutely certain about. My diagnosis, or opinion I may say, was based mainly upon the patient's general condition and upon the fact that she usually had fever, a rapid pulse, and more or less cough and expectoration when I saw her.

August 25, the mother sent me word that the child's feet were swollen. I sent word to put her to bed and keep her there until I could see her. The next day, when I called, I found that a decided change had taken place in the condition of my little patient. She had lost more or less flesh, was anaemic, had fever, a severe cough accompanied with considerable expectoration, and her feet were swollen. The physical signs, as I recall them, consisted in well defined dullness over the lower half of the right side of the chest, together with absence of the vesicular murmur over the same area, and increased respiratory sounds elsewhere. It may appear strange that these signs could now be so well made

out, when previously I had been in doubt as to their existence. But it must be remembered that I had not seen the patient since June 16, an interval of one month and ten days, and that many changes could have taken place in that time. I did not notice at this time the odor of the expectoration, which later became so markedly offensive and so profuse.

About this time a police surgeon, after having considerably assured the father that it was not necessary to say anything to me about it, generously volunteered to examine the child. He expressed the opinion that she had consumption, but thought it wise to take a specimen of the sputum for examination. The examination gave evidence of an abscess, but no tubercle bacilli. I had every confidence in the statement, but I thought it wise to have an examination made myself. Being prejudiced in favor of the truth, I am compelled to admit that the examination confirmed that of the Doctor's. Not being entirely satisfied yet with the findings, September 8 Dr. J. B. Nichols was called in by me. He thought the case one of tuberculosis. However, an examination of the sputum and blood by him only confirmed the previous ones.

Dr. Kolipinski's skill had somehow become known to the father, and he was called in to see the patient September 13. The symptoms, previous history, physical signs and microscopical findings were carefully detailed to him by me and the child's father. Just as he entered the room she was seized with a severe fit of coughing, during which she discharged a number of mouthfuls, perhaps two or three ounces, of fetid yellow matter similar to that she had been getting up, but in larger quantities than I had seen before. Dr. Kolipinski made a careful examination and readily confirmed the diagnosis of abscess of the lung. He did not think it a case of tuberculosis. He recommended, in addition to that already being done for the patient, that ten grains of flowers of sulphur be burnt in the room two or three times a day, with the doors and windows tightly closed. This he thought would reach the trouble, and that there would be a decided change in a few days. If the patient stood the treatment well, the amount of sulphur was to be increased.

The other treatment, here referred to, consisted in keeping the patient in bed in a well ventilated room and the administration of nourishing foods, tonics and creosotol. Dr. Kolipinski rather dis-

approved of the creosotol, and suggested beechwood creosote instead. The decided change predicted was not noted after a few days nor after a week or two of the treatment advised, and so, acting upon the idea that had been advanced, that perhaps it might be possible to reach the seat of the disease by inhalation, I fixed up an apparatus similar to one described in a copy of the *Phila. Med. Journal*, of December 13, 1902, and which was claimed by the Doctor who described it, to be of marked benefit in tuberculosis. After thorough trial of this apparatus to no avail, and fully aware now, as I had been for some time, that I was dealing with abscess of the lung uncomplicated by tuberculosis, I determined to acquaint the father with the futility of longer hoping for any benefit to be derived from any medicine, either by inhalation or otherwise; to tell him that, in my judgment, an operation offered the only possible chance of saving his daughter's life, and that if I could find any one sufficiently skilled to definitely locate the abscess, and who would give reasonable guarantee of a successful operation, I would consent to it. And this I determined to do in spite of the opinion expressed by Dr. Kolipinski that an operation would be but an experiment, inasmuch as operation for abscess of the lung was not recognized by the profession generally as a legitimate and justifiable surgical procedure. The father was willing to leave the matter to me. Accordingly, I called Dr. S. S. Adams in consultation October 14, 1903. He readily diagnosed empyema. He accounted for the discharge of the pus through the mouth by supposing that the pus-cavity had ruptured through a portion of the lung into a bronchial tube, and was then discharged *per orem*. Dr. Adams thought that an operation would be unattended with grave difficulty and that the chances of success were about 90 per cent.

She was taken to the Children's Hospital and operated on by Dr. J. Ford Thompson, October 20, 1903. Dr. Thompson was apprehensive that she might die on the operating table during one of her coughing spells, and, accordingly, only a minimum of anaesthetic was used, and the operation done with as much dispatch as possible. Dr. Thompson said he doubted the existence of empyema, and suspected abscess of the liver. The lower part of the lung and the upper surface of the liver were exposed through an opening in the chest wall, a portion of the sixth rib being removed, but the trouble could not be located, much to the chagrin of every

one and particularly Dr. Thompson. I did not see the patient from the day after the operation until February 8, 1904, which was a few days after she returned home from the hospital. But some time before she left the hospital I requested the father to see Dr. Adams for the purpose of getting his opinion as to the probable benefit that might be derived from inflation of the pleura after the method of Murphy, with a view of obliterating the abscess cavity. Dr. Adams said he had had no experience whatever with the method and could not see how any possible good could be derived from it in this case.

It was to relieve her of the pain in her side that I was called in. She was extremely emaciated, breathed with great difficulty and was so weak that she could scarcely speak above a whisper, and even dreaded to do this. I realized that the end was near and so informed the father. She died about midnight February 9. For some hours before death, owing to her extreme weakness, she was unable to get up any of the pus.

About half past two, February 10, Dr. D. S. Lamb made a *post mortem* examination. Only the lower lobe of the right lung was found to be diseased, one large abscess and two or three smaller ones in process of formation being found.

Dr. Lamb was not very communicative as to what was the cause of the trouble nor in regard to the conditions found, except to say that there were pleuritic adhesions and an absence of any evidence of a previous pneumonia. His reticence was due, no doubt, to the fact that he preferred to examine the specimen carefully at the laboratory before expressing a positive opinion.

The finding of the rivet eloquently testifies to the wisdom of the Doctor in not attempting to account for the conditions found before all the facts were known, and proves his eminent skill as a reliable and painstaking pathologist.

Since the finding of the rivet, inquiry has elicited from the father and mother and a neighbor who saw much of the patient, the following: She had had, ever since her attack of diphtheria, a large and roomy throat and could swallow almost anything without difficulty. She was in the habit of "putting things in her mouth." When dressing her dolls she often had her mouth full of pins, even when a small child. It is known that once she swallowed a ten-cent piece, and three or four years ago she swallowed a pin. Sometime in the early summer of 1902 (or possibly in 1901), she

told her mother that she had swallowed a piece of bent iron while playing in the loft of the stable. The neighbor referred to above, relates that the child came to her house at the time and told her about it. She coughed and seemed strangled and took a number of swallows of water in order to dislodge the article, whatever it was. After this, most probably, a peculiar habit of sneezing and coughing developed, at times without apparent cause, even in school, and so peculiar and unusual was the noise that those who heard it were forced to laugh at her, and often teased her. It resembled very much a cat sneeze.

This neighbor also relates that some time in the summer of 1902, the child went with her to Colesville, and that at night she coughed a great deal. She seemed sick and, as she had worn a low-neck dress, the inference was that she had taken cold. Looking back over the case, in the light of this subsequent history and the *post mortem* findings, I explain the case as follows:

Sometime in the early summer of 1902 (or 1901?), while holding the rivet in her mouth it accidentally slipped beyond control, and quickly passed down the trachea into one of the smaller bronchi. This was the occasion of the fit of strangulation and coughing referred to above, but as the diameter of the rivet was small it soon got too far into the lung to be discharged. During the remainder of the summer and fall of 1902 (or summer and fall of 1901 and the year 1902?), the foreign substance made no trouble other than to bring on the severe spells of sneezing and coughing, unless the little spell at Colesville and the one for which I was called in, August 16 and 17, can be thus accounted for. And I am inclined to think they can, at least in part, for they must have occurred but a short time after the entrance of the rivet. The latter part of December, 1902, or the first of January, 1903, she contracted a severe cold or perhaps "the gripe," from sitting in school in wet clothing, and from other exposure (for she was very careless about keeping her feet and clothing dry), and as the cold did not yield to domestic treatment, I was called in. As a result of the treatment and the hygiene under which she was placed, she improved. Getting better, the treatment was abandoned, and she again began to lose ground. This was about the middle or the latter part of June, 1903. An attack of the mumps, which came on about August first, in her weakened condition, hastened or perhaps precipitated

the formation of the abscess of the lung. Of course, the presence of the rivet had kept up more or less irritation from the first, and during the early part of the year 1903; but I am convinced that there was no abscess previous to the latter part of June or July, if as early as this. I am also convinced that, had the abscess been found and drained by Dr. Thompson at the time of the operation, the patient would have had a possible chance of recovery.

Many of the interesting features and symptoms of this case have been but barely referred to by me in this hurriedly prepared outline, or skeleton, I might say, but I trust it may serve as a suitable (even if improvised) support or prop for the various theories offered by those who saw the case, in explanation of the condition found, as well as insure a most satisfactory elucidation of it in the discussion that, no doubt, will follow.

Four lessons, in addition to the other knowledge I trust I have acquired, have been impressed upon me by this case.

First, that whenever a physician is not certain of his diagnosis he should resort to all the aids at his command, and not leave it to a more enterprising and considerate brother to come in and get the credit in his absence and without his knowledge.

Second, that the enlightenment that, all too often, can only come from an autopsy, could profitably by the doctor and would willingly by the patient, be dispensed with if *ante mortem* examinations (otherwise known as exploratory incisions) could be made as beneficial to the patient living as *post mortems* are harmless to him *dead*.

Third, that sometimes one's ignorance is made to appear less dense when brought in contrast with the brilliant knowledge of his most gifted and highly accomplished confrères.

Fourth, that the surest way to avoid empalement upon the shaft of adverse criticism is to empale your adversaries first. (This last, however, I am somewhat in doubt about, as yet.)

Dr. D. S. Lamb said that he made the post-mortem examination as stated by Dr. Chappell. The body was much emaciated. There were firm old adhesions of almost all the pleural surface, especially firm at the diaphragm. There were multiple areas of consolidation, especially in the lower lobe; many of these areas contained irregular gangrenous abscesses; the largest, most ragged, and probably the oldest, was at the base. The rivet, 1½

inch long, was in the large bronchus leading to the lower lobe, and was covered with rust and black matter. All the other organs appeared to be normal, except the bronchial glands, which were enlarged.

Dr. S. S. Adams said that the case was that of a young girl, 14 years old, who had been sick some months, had been seen by a number of physicians, and whose sputum had been examined by a competent bacteriologist. Dr. Adams saw her October 14, in consultation with Dr. Chappell. Dr. Adams carefully examined the patient, and expressed the opinion that there was pus in the pleural sac, that it had ruptured into a bronchus, that an operation was necessary, and that recovery ensued in 90 per cent. of cases of purulent effusion operated upon.

Not until after the autopsy, and the finding of the rivet did the parents make the statements mentioned in the paper, which, if made earlier might have led to the discovery of the true cause of the patient's condition. Dr. Chappell stated that he knew nothing which could possibly explain the patient's condition; hence, attention was directed to the diseases which might be present, and every one was most carefully considered. The history given Dr. Adams by the attending physician, with nothing to arouse suspicion of the presence of a foreign body, was such as to direct his attention to her present condition. Hence he was as much surprised as any one when Dr. Lamb reported the finding of the rivet in the bronchus.

There were three diseases which might have caused the patient's condition: Empyema, bronchiectasis, and abscess of the lung. Tuberculosis was ruled out by bacteriological examination of the sputum. [Dr. Adams discussed the diagnosis and differential diagnosis of these three conditions in detail, showing how almost every feature of the case pointed to empyema, and why he had made a diagnosis of empyema and recommended operation; conclusions which were subsequently confirmed by the hospital staff and others.]

The girl was admitted to the hospital, and a careful examination was made. The sputum showed evidence of the presence of pus in the lung, but signs of bronchiectasis were absolutely lacking, as were also those of tuberculosis. In accordance with these findings he stuck to his original diagnosis. The patient was most carefully and thoroughly examined by a number of physicians; no one was derelict in his duty; everyone of them examined the patient with the greatest care. All were agreed as to the physical signs present. The surgeons could best speak of the case from the surgical point of view. Before the operation Dr. Thompson made an exploratory puncture over the most marked portion of the diseased area, and drew off only some bloody serum; there was no sign of pus. This, however, might easily happen with

an encysted empyema. At the operation, after a most thorough exploration, no pus was found.

After the operation the patient improved at first, but soon became septic, and was removed to her home, where she died. The findings at the necropsy had been described. The peculiar sound as if pus was passing through a ruptured bronchus was probably made by the rivet.

Dr. J. Ford Thompson said that the case was the most interesting one in his experience. He disclaimed, however, any responsibility for the surgical outcome of the case. The attending, or first physician, was supposed to have studied it exhaustively and carefully. The first time Dr. Thompson saw this patient she coughed up a mass of foul pus, and he thought that she would die in the effort. He believed that there was pus somewhere, and the patient was painstakingly examined by a number of physicians as well as himself. The X-ray apparatus was also used, but unsuccessfully. No one had the slightest idea that a foreign body was present. He did not believe that the case was one of empyema any more than that it was an abscess of the liver opening into a bronchus. He believed, however, that there was an abscess, and nothing was left to do but an exploratory operation.

The operation was most thoroughly done, but to his astonishment, no abscess and only a few adhesions were found. In addition, he introduced an aspirating needle in two or three directions, and also into the bulging area over the liver, but without result. During the operation, he palpated the lung from apex to base, but found nothing. Afterward, he said that if the physicians would tell him where the abscess was, he would operate again, as the child was dying. Up to this time the case was operable, but not subsequently.

Dr. Thompson discussed the operation which he would have done had a foreign body been diagnosed, or had one been discovered at the time of operation. The foreign body could have been removed with comparatively little difficulty. The case was in itself not particularly remarkable; foreign bodies had remained in the bronchi for years, and then been expelled. In 50 per cent. of these cases, however, there was a mistake in diagnosis. In this case no one could possibly be blamed. There was nothing in the world to suggest the presence of a foreign body.

Dr. Snyder said that one thing had been brought out by Dr. Adams; he could verify his mistakes, and all of us did not have the ability to do this. Dr. Snyder thought that too much stress was often laid upon the results of bacteriological examination of sputum; the bacilli were not always found even in tuberculosis.

Dr. Chappell, in closing the discussion, said that he did not mean to criticise anyone connected with the case. Everybody did all that could be expected. The trouble was no one did bet-

ter than was expected. He regretted that no one had mentioned foreign bodies as a possible cause of abscess of the lung. A mere suggestion of the kind would have led him to make inquiries of the parents, and thus we might have had the credit of having discovered the cause of the trouble.

CASE OF ABSCESS OF LIVER.*

By G. W. COOK, M. D.,

Washington, D. C.

W. H. J., white man, age 41, native of Maryland, occupation, baker, was admitted to Garfield Hospital January 3, 1904. He had resided in Washington since 1891. He was spare and delicate looking, and gave a vague history of malarial chills and digestive disturbances extending over a long period. He said that recently his appetite had been poor, and that he had had frequent "spells" of nausea and vomiting with pain in the epigastrium, and that he had been gradually losing strength. His bowels had been constipated.

January 1, he had a severe attack of indigestion after eating a too full meal; pain in abdomen intense; nausea and vomiting. He took a large dose of castor oil which moved his bowels frequently during the night. He did not observe any blood in the stools. The same night he had a pronounced chill followed by a drenching sweat. The next morning he had another chill, followed by sweating. January 3 he had two severe chills, and was admitted to the hospital in the afternoon. Temperature at four P. M., 100.6°.

January 4, he complains of pains in his limbs and back, the pain extending up into his neck and head. He sweated a great deal, especially when asleep. Had little appetite; tongue dry and coated, the tip and margins being red.

Chills were of frequent occurrence for several days, being uninfluenced by quinine. Examination of the blood for the malarial parasite was negative. Blood count, January 6, showed leucocytes 7,300. Pain and tenderness in abdomen continue, the seat of greatest pain being at the margin of the rib over the projecting edge of the liver; there was tenderness over the region of the

*Reported with specimen to the Medical Society of the District of Columbia, March 2, 1904.

twelfth dorsal vertebra. The abdominal walls were tense from tympanitic distension. On one occasion he vomited a considerable quantity of partly digested blood. The temperature ranged from a little below normal to 105.8. Blood count, January 12, 11,800 leucocytes.

My judgment was that the patient was probably suffering from a suppurative process in the liver, and he was referred to the surgical side for operation, Dr. J. Ford Thompson agreeing that an exploratory operation was justifiable. Accordingly, on the 20th of January, the abdomen was opened by Dr. Thompson, but a careful examination of that portion of the liver that was accessible gave no evidence of disease, and all the other organs within reach seemed to be normal. The result of the exploration only rendered conditions more obscure than they had been. The patient died on February 2, and the autopsy cleared up the condition.

Dr. Butterfield, who made the autopsy, made the following report :

Autopsy, 12 hours after death. Body, 170 cm., bony and markedly emaciated. Color of skin, pale, muddy, yellowish white ; panniculus, thin and flabby. Conjunctivae, pale ; sclerotics, bluish white. Surgical dressing over epigastric and right hypochondriac regions. Surgical incision slightly to the right of the median line, commencing 2 cm. below costal border and ending 1.5 cm. above umbilical line ; wound gaped slightly ; a few stitches had been removed. Process of repair fairly well advanced in the apposed surfaces. Pus could be expressed from the stitch holes. Abdominal fat, thin ; muscle layer, thin and brownish red. Omentum and parietal peritoneum in region of surgical incision were matted together by recent adhesions. There was a thin fibrous layer over convexity of liver. Duodenum and coils of jejunum loosely bound together by fresh adhesions.

Left lung.—Apical adhesions ; emphysema of apex ; hypostatic congestion at base. Right lung.—Fibroid and calcareous nodules in apex ; hypostatic congestion at base. Heart.—Distended with fluid blood ; myocardium pale, grayish red ; wall of left ventricle 1.4 cm. ; valves practically normal.

Spleen.—Measured 13.5 × 9 × 4 cm. ; weight, 280 grams ; fibrinous perisplenitis ; acute hyperplasia. Kidneys.—Parenchymatous degeneration. Duodenum and jejunum.—Normal. Biliary channels patulous. On squeezing the gall bladder a turbid,

whitish fluid oozed from the biliary papilla. Peyer's patches in the lower portion of the ileum showed grayish black pigment. The caecum was of a uniformly purplish hue; the vessels of the serosa arborescent; a few bright red petechiae seen on the mucous surface; about the orifice of the appendix were numerous small hemorrhages. The appendix was twisted on itself; its tip adhered posteriorly. On opening it creamy yellow pus escaped. Colon and rectum normal. Stomach showed punctate submucous hemorrhages.

Liver.—Enlarged and soft; surface marked with numerous large bluish discolorations, the intervening tissue being reddish brown. On cutting the portal vein there was a copious flow of light yellowish creamy pus. The greater portion of the right lobe was occupied by branching pus collections; the left lobe not involved. Liver parenchyma between the pus collections showed a moderate distension of the central veins and a light yellowish opaque vein in the peripheral zone of each acinus. Weight of liver, 2,270 gm. Portal vein.—The trunk was filled with a variegated friable mass, easily separable from the vessel wall. In color it was greenish yellow, here and there reddish, and occasionally greenish black. This laminated thrombus could be traced into the opening of the superior mesenteric veins. Gall bladder.—Not distended; contained a thin, whitish turbid fluid.

Pancreas.—Apparently normal. Bladder.—Normal. Aorta.—Beginning atheroma.

Anatomical Diagnosis.—Suppurative thrombo-phlebitis of the portal vein; purulent appendicitis; acute splenic tumor; parenchymatous degeneration of kidney; fibroid tuberculosis of right lung.

Microscopically, the wall of one of the abscesses in the liver showed a zone of necrotic tissue with remnants of polymorphonuclear leucocytes and fibrin, beneath which were numerous large cells, with pale vesicular nuclei (fibroblasts), and beyond this layer of repair, hemorrhages and congested liver parenchyma. The relation to the portal vein branches was lost. Micrococci were present in the necrotic tissue layer, but no amoebae were present.

Culture.—*Staphylococcus pyogenes aureus* and *bacillus coli communis* were recovered from pus in the liver and likewise from the appendiceal pus.

Dr. D. S. Lamb said that the specimen well illustrated the pathological condition affecting the entire gland. There was no doubt as to a connection between disease of the appendix and abscess of the liver; the relationship would be oftener observed if the appendix were opened and examined, even in cases where it appeared healthy. Disease of the appendix was often overlooked. In illustration, he cited instances in which he had incidentally opened the appendix and found it diseased.

Dr. J. Ford Thompson said that the appendix undoubtedly played an important part in the causation of abscess of the liver, but in this case it presented no symptoms. He was inclined to favor a diagnosis in this case of empyema of the gall-bladder, or abscess in the lesser peritoneal cavity. He operated with this in view, but a careful examination showed no signs of pus. Even the liver itself gave no evidence of pus; still, he believed it was present. No operation could have saved the patient. In Dr. Cook's second case, in which Dr. Thompson operated, pus was very evidently present, and the abscess was drained without especial difficulty. The patient was doing well. The two cases illustrated the difference between the clinical manifestations in two similar conditions.

THE INSTRUCTIVE VISITING NURSES' SOCIETY OF WASHINGTON.*

By ANNE A. WILSON, M. D.,

Washington, D. C.

I would like to call the attention of the Society to a charity in this city which is doing all in its power to bring about a healthier state of things among the poor inhabitants of Washington, and thus indirectly to improve the general health of the city. I refer to the Instructive Visiting Nurses' Society.

To some of you, notably our Health Officer and the recent President of our Medical Society, and to the Physicians of the Poor, the work of this organization is well known and appreciated.

It is the aim of the Society to reach as many as possible of the really needy sick, and many doctors who are not on the list of Physicians to the Poor must have such cases, and some at least of these are not aware of the ease with which they may secure the assistance of a trained nurse for their poor patients, who are

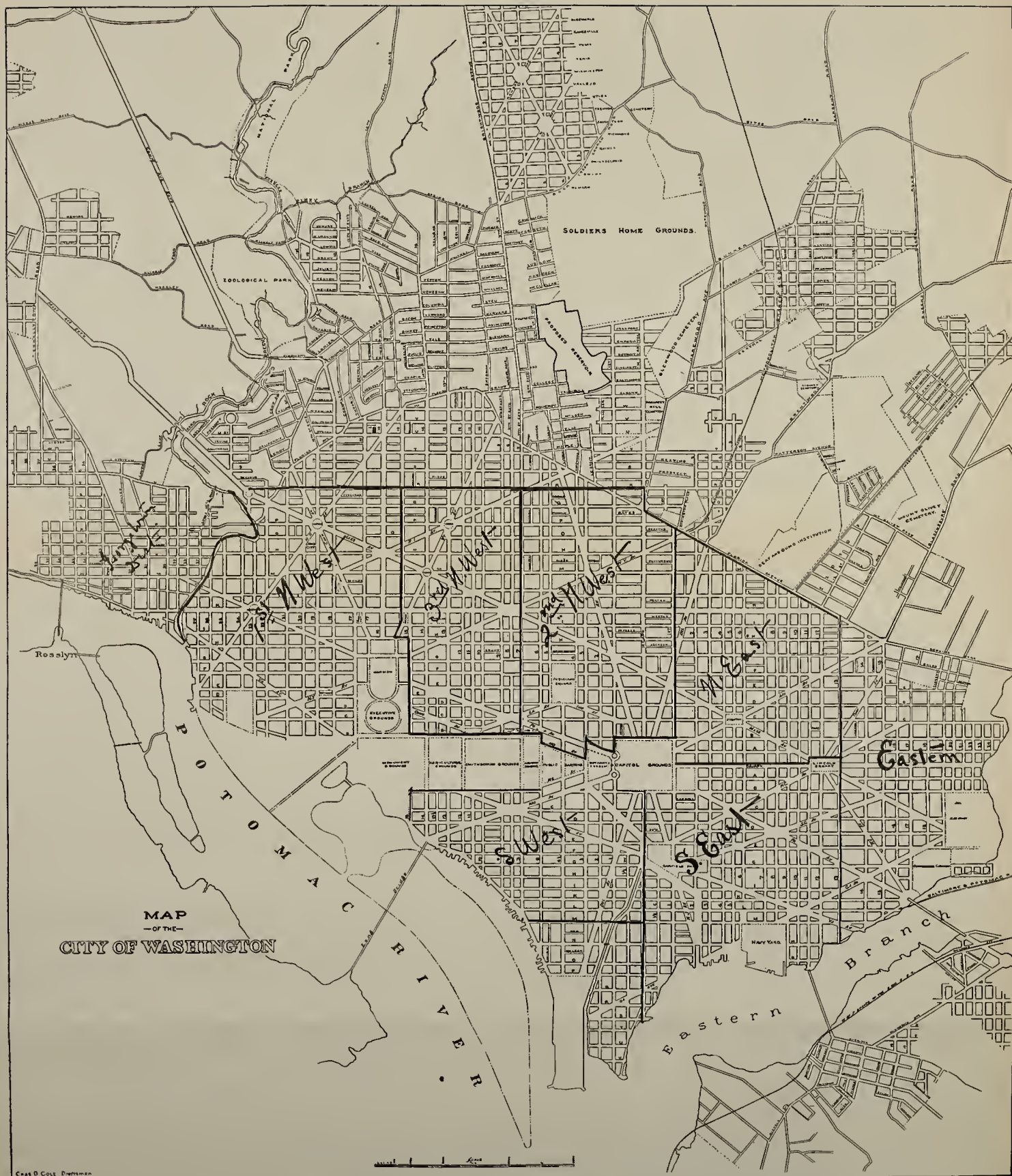
*Read before the Medical Society of the District of Columbia, March 9, 1904.

generally incapable of carrying out the injunctions left by the physician, and are oftentimes not able to procure the things necessary for so doing.

Organized district nursing was begun in London, England, in 1868, where, I believe, the society now known as the Queen Victoria Jubilee Institute employs over 200 nurses, living in 26 homes scattered throughout the city. The work of instructive visiting nursing was begun in our country in 1885, when Miss Abbie Howe, of Boston, having studied the methods employed abroad, was joined in her efforts by Miss Phoebe Adam, then at the head of the Boston Society for Providing Day Nurseries. Miss Adam had become convinced of the great need of instructing the mothers in the principles of simple sanitation. The Boston Society has flourished since its organization, the city being now divided into 12 or 14 districts, with a nurse for each. Philadelphia soon followed Boston's example, and since then Chicago, Baltimore and other cities have established similar societies. Wherever the work has been begun it has proved a powerful factor for good, for not only has it brought help and comfort to the sick and suffering poor, but the general sanitary conditions have improved.

Four years ago the Society was started here through the efforts of several ladies to whom the urgent need for the work had been represented. The fact that a corps of Physicians to the Poor is necessary, shows that it is only the minority who are fortunate enough to be able to gain admittance to the hospitals, and there are many cases in which, for various reasons, it is necessary for the invalid to be cared for in the *home*. In February, 1900, we started with one nurse in Southwest Washington. The Physician to the Poor in this District very soon expressed his appreciation of the assistance thus given him, and the Health Officer was only too glad to add his approbation of the work he had long desired to see started here. Since then the scope of the work has gradually enlarged and we now have 7 nurses working in 7 districts. The nurses are under the supervision of a superintendent—Miss Washington, whose headquarters are at 811 G Street, N. W., and who can be communicated with by telephone.

Each nurse reports at the police precinct of her district to ascertain the new calls sent in by the Physicians of the Poor, and to receive instructions about patients from the latter. There



MAP OF CITY OF WASHINGTON.

The heavy lines define the areas of the districts cared for by
The Instructive Visiting Nurse Society.

is also a branch office in each district, where the nurse receives other applications. At these offices each nurse is furnished with a supply and loan cupboard; the former contains the dressings, antiseptics, hot-water bottles, bed-pans, rubber sheets, etc. From the loan cupboard she supplies sheets, pillow-cases, towels and gowns with which to keep the patient clean and comfortable.

As time has gone on we have been made to realize more and more the great importance of the work, not only as an agency of sick relief, but gradually a sense of the necessity for cleanliness and hygiene is growing amongst the lower classes. The late Dr. W. W. Johnston considered the work a most important one, and spoke so earnestly of the benefits which the city was going to gain thereby, expressing the wish that he would see 20 nurses employed by the Society, that it was hoped by many of his friends—when death suddenly removed him from our midst—that funds might be raised to support one of the Society's nurses, to be known as the W. W. Johnston Memorial Nurse. In his report to the Board of Trade, as chairman of the Committee on Public Health, Dr. Johnston spoke thus of the Society:

Resolved, Third, That the work of the Instructive Visiting Nurse Society, carrying assistance and instruction into the homes of the poor, be formally endorsed by the Board of Trade, and that encouragement be given to this Society to broaden its work so as to teach the poor how diseases may be avoided, as well as cured.

One very important direction in which we are laboring, and where we feel that our efforts are beginning to be rewarded; is in the prevention of the spread of tuberculosis. From the beginning, our nurses have distributed the sputum cups, and have patiently labored to teach the people the proper use of them, and the necessity for their destruction by fire. It has been up-hill work to make them realize the danger in not carrying out the rules given them, but our nurses now report much greater care and understanding in the matter. This part of the work alone makes it of value to the whole community.

In closing I wish to say, that I am not appealing for funds from the members of the Society—the object of my remarks is to make the work of the Instructive V. N. S. better known to the members of the Medical Society, and I have placed on the table several

maps of Washington, with the districts marked out in which the nurses are now working. We shall be very glad to give any further details desired regarding the work, and if any of the physicians present have any patients who are charitably inclined we hope they will not forget to tell them of the needs of the Instructive V. N. Society.

CASE OF GASTROENTEROSTOMY WITH THE MURPHY BUTTON.*

By G. TULLY VAUGHAN, Surgeon, U. S. Public Health and Marine Hospital Service.

Colored man, age 57, entered Emergency Hospital, Washington, with history covering an indefinite period, of constipation, gastralgia and increasing emaciation; vomiting more and more frequent. Tumor evident in epigastric region, extending over into right hypochondrium. Patient's condition at time of operation was bad. Tumor was adherent all around. Neighboring glands enlarged. Radical operation was out of the question, and Von Hacker's posterior gastroenterostomy was performed, using the Murphy button. The patient at first did well; there was less vomiting, and the wound healed with a little pus. On the 14th day, as the button had not been passed, an X-ray examination was made, and it was located in the descending colon. Patient died on the 41st day, of exhaustion. The button was found in the rectum. Dr. Vaughan exhibited the stomach and jejunum and the button, showing the firm and strong anastomosis which had been secured, and that, too, without the use of sutures, for none were used in making the anastomosis. The opening was as large as the thumb, and the union was all that could be desired.

The case showed unquestionably that it was not necessary to use sutures in all cases of intestinal anastomosis with the Murphy button. It was not advisable to dispense with them in all cases, however. To prevent the formation of a "vicious circle," Roux's method was best, and Dr. Vaughan briefly described it.

Dr. Carr said that many claimed that there was no necessity of using a button or similar appliance in making these anastomoses; this was true when the intestine could be drawn freely out

* Reported with specimen to the Medical Society of the District of Columbia, March 9, 1904.

of the cavity, and an anastomosis could be done by suture, without the button perhaps as quickly as with it. But when the ends could not be drawn up out of the wound, great difficulty was often encountered in securing an anastomosis with sutures only. The main difficulty with the button was that the opening was too small; the general complaint was that it became smaller in time, and might even entirely close up. Hence, some time ago he had devised some small silver clamps with which an anastomosis could be made as quickly as with the button, and they gave in most cases a better result, in that the opening could be made as large as desired. They were small, and readily passed *per rectum*. He exhibited the clamps which were about the size of a water melon seed. When they were used there was no likelihood of subsequent obstruction. When working deep down in the abdomen, they were much more easily applied than the purse-string suture with the button. The clamps and a suitable forceps for applying them were made by Lenz & Lossau of this city.

CASE OF FOREIGN BODY IN THE LUNGS.*

By A. R. SHANDS, M. D.,

Washington, D. C.

E. H., white, age, 5 years. First seen by me in Norfolk, Va., February 13, 1901, in consultation with Dr. Kirkland Ruffin. About two years previous to this time it was thought that the child had swallowed a foreign body of some kind. Within a few days after the accident the child developed a pneumonia; this was followed by an empyema which was only partially relieved by a very radical operation-resection of a rib, by Dr. Ruffin. The wound never healed, it was discharging freely at the time I saw it, nearly two years after the operation. Within a few months after the pneumonia the child developed a chronic pulmonary tuberculosis, and about twelve months later, Pott's disease.

When I saw the child at the time above noted it was in an extreme condition of chronic sepsis; it was much emaciated; the liver was so much enlarged that it gave the abdomen the typical "boat-belly" appearance. There was a prominent kyphosis involving three or four of the upper dorsal vertebrae; a large abscess on the side of the kyphosis almost ready for spontaneous rupture, also a large discharging psoas abscess.

* Reported to the Medical Society of the District of Columbia, March 9, 1904.

My prognosis at the time was that death would in a short time relieve the little sufferer of his agony. As it was impossible to handle the little fellow without giving great pain I applied a plaster-of-Paris jacket believing that it would immobilize the spine sufficiently to relieve at least some of the muscular spasm and pain that was produced every time he was handled.

The parents were so dissatisfied with my prognosis that they took the case out of Dr. Ruffin's hands and consulted another physician in Norfolk who advised them to take the child to the Johns Hopkins Hospital. I was never able to ascertain just what was done there, but the child died in a few days after it was taken there. At the post-mortem examination a nail $1\frac{1}{2}$ inches long was found in the abscess cavity in the lung, which was the source of the pus that had been discharging for two years at the seat of the operation of thoracotomy.

It must be concluded that the presence of the foreign body caused the pneumonia which was followed by the empyema, and that the thoracotomy wound never heal because of the presence of the foreign body in the lung abscess which was in direct communication; also that the tubercle bacilli found entrance into the lungs at the time of the pneumonia, in some unexplainable way. The tubercular spondylitis was a secondary infection. Death was caused by the chronic sepsis following the general tubercular infection.

THE PROGNOSIS AND TREATMENT OF URETHRAL STRICTURE.*

By E. L. KEYES, JR., M. D.,

New York City.

Surgery differentiates itself from Medicine by the act of man. Whereas the physician must usually wait upon Nature and assist the patient to recovery by forestalling complications and strengthening him to overcome an inevitable foe, it is the privilege of the surgeon to open hostilities.

Such being the case, it is essential in debating the prognosis of a surgical disorder—and urethral stricture is essentially a surgical disorder—to deal intimately with its treatment. The two are in-

* Read before the Medical Society of the District of Columbia, March 23, 1904.

separable. Proper treatment of stricture implies, in general, a good prognosis; improper treatment, a bad prognosis. Indeed, we may go even further and state, with ample justification, that proper treatment of the causes of stricture will prevent its occurrence.

The causes of stricture are two: gonorrhea and trauma. Let us begin by considering the prognosis as to stricture in these conditions.

The opinion prevails that stricture is usually caused by chronic gonorrhea. No doubt this opinion is founded on the fact that chronic gleet usually precedes and accompanies other symptoms of stricture. But close observation reveals the fact that many cases of chronic gleet go on for years without producing stricture; while, in the other cases, the gleet is itself the first symptom of a gradually contracting stricture. After all, stricture is nothing more than a scar; and gonorrheal stricture is usually a dense and deep-seated scar founded, the pathologists tell us, on inflammation about the glands and follicles of the urethra. It is obvious that the intensity of this perifolliculitis depends on the intensity of the urethral inflammation against which it reacts. In other words, it is the acute stage of gonorrhea, with its blood, ardor and chordee, that lays the foundation for future stricture; and to prevent stricture we must modify the acute stage of the specific cause. This is one of the important advantages of the so-called abortive treatment of gonorrhea. I have employed this treatment for more than three years and have never known stricture to follow its use.

Traumatic stricture is attributable to two causes: urethral instrumentation and perineal injury. Happily, the day of urethral brutality is almost past. The practice of "burning out a clap" with copious and concentrated silver nitrate, and of tearing the canal with metal instruments of all sizes and shapes, is no longer the ornament of modern surgery.

The sensitiveness of the urethra is respected more than it used to be; but be gentle as we may, there is one condition in which the passage of an instrument sometimes causes stricture. I refer to the constant passage of a catheter required by many cases of prostatic hypertrophy. Some of these patients acquire stricture in spite of every precaution; but, fortunately, this stricture is superficial and soft, yielding readily to dilatation.

Quite the opposite is traumatic stricture due to perineal injury.

The patient falls astraddle the edge of a plank or some sharp object. Hemorrhage from the urethra, difficult urination, even complete retention, disclose the urethral injury, and stricture follows swift and sure—stricture of the most resilient, intractable type. Indeed, so dense is the scar that follows an almost trivial injury of this kind that the only safe practice is to perform external urethrotomy in every case, be the symptoms of urethral rupture ever so mild, and to minimize or prevent dense scar formation by incising the contused canal and draining with a large perineal tube. Stricture will doubtless ensue, but it will be relatively benign and dilatable.

So much for prognosis before the fact. When stricture is actually present the immediate prognosis depends entirely upon its dilatability. If the passage, about twice a week, of conical sounds or bougies causes a gradual widening of the caliber of the urethra, so that at each session larger instruments will pass without the use of too much force, the prognosis is excellent; the patient appreciates the prompt subsidence of symptoms and the surgeon recognizes the gradual absorption of the scar.

But the stricture may be undilatable for one of four reasons: it may be resilient, irritable, impassable or complicated.

Resilient or unyielding strictures are those which do not yield to dilatation, which, after each passage of a sound, recontract to their former tightness. Such strictures are common in the penile portion of the urethra. In this region we frequently meet a stricture that yields to dilatation up to a certain point, but beyond this is persistently resilient. This fact once established internal urethrotomy is demanded. The urethra should be cut widely upon the roof, then the occasional passage of a sound will maintain the caliber of the canal.

In the deeper urethra resilient strictures are usually, perhaps always, traumatic. Gonorrheal strictures of the bulbous portion of the canal—be they ever so dense—are doubtless always dilatable, unless the tissues have been damaged by brutal surgery or by periurethritis and urinary infiltration. Not so traumatic strictures. These involve the membranous urethra, and are often so dense and resilient that nothing short of perineal section and excision of all the scar tissue will effect a cure. In order to be radical such an operation may require the removal of an inch or more of the canal and the application of a skin graft to fill the gap; yet

it is always wise to resort to operation at once rather than to temporize with resilient deep stricture, vainly hoping that it may become dilatable.

Irritable stricture does not resist dilatation, but resents it. Every passage of a sound, in extreme cases every kind of urethral application whatsoever, arouses acute inflammatory reaction in the form of urethral chill, acute prostatitis or swelled testicle. In face of such an explosion local treatment must stop, and when similar outbursts follow every attempt at dilatation it is impossible to make headway. In order to overcome this difficulty two courses are open, the one, mild, slow and uncertain, the other radical but relatively dangerous. If circumstances permit, the palliative course is to be elected. Local treatment is stopped and internal treatment pushed. Antiseptics, such as urotropin, salol and methylene blue; sedatives, such as liquor potassae, tincture of hyoscyamus, codeine and the bromides; balsamics, such as sandal-wood and wintergreen oil, with hot sitz baths and, if necessary, suspension, guaiacol and poultices to the testicle, constitute the treatment; for the irritability is not a quality of the stricture itself, but a manifestation of smouldering prostatitis, vesiculitis or pyelonephritis, which inflammations must be controlled by the above-mentioned remedies before local treatment of the stricture can proceed.

But such a course may fail to effect its object, or the retention or sepsis due to the stricture may be so grave as to threaten life. No alternative is then possible; external urethrotomy must be promptly done. The risk of operation under such circumstances is not small, especially since the emergency often arises in cases that are worn out by suffering and sepsis, fatty in heart, sclerotic in kidneys, utterly unfit for surgical shock. Whatever delay is permissible should be made use of to improve the patient's condition by milk diet, saline enemas and urotropin to the limit of tolerance, and the operation itself must be rapid perineal section with drainage by a large perineal tube. When relapsing epididymitis can be relieved by no other treatment, the vas deferens may be cut and tied. This prevents relapse, renders the testicle sterile, but affects neither the appearance of the gland nor the potency of its possessor.

Impassable stricture, the third variety of undilatable stricture, is of purely negative interest. If actually impassable perineal

section without a guide is our soul resort ; but it is a great delight—albeit a tedious performance—to pit one's dexterity against the tightness, or rather the tortuosity, of such a stricture. Tight it certainly is ; yet the reason why a filiform bougie sometimes fails to enter a channel from which urine will flow in measurable stream, is because the tortuous passage transmits fluid, but will not unbend to permit the entrance of a stiff instrument. Now the potent agencies to render a stricture impassable are congestion and spasm—this is exemplified by the occurrence of retention of urine from such causes as exposure to cold and over-drinking—hence the first effort to enter such a stricture must be, not a brutal and irritating prodding with bougies, but a systematic reduction of congestion and spasm. If the occasion permits, let the patient have a hot hip bath, an injection of morphine, even a course of balsamics and sedatives. Then begin operations by distending the anterior urethra with a solution of cocaine 5 per cent. and adrenalin 1:5000. Hold this in the canal five minutes, then inject sterilized olive oil ; then to instruments. Filiform whale-bone bougies, bent obliquely or bayonet-wise, are passed *secundum artem* very gently until one engages and enters the bladder. The others are then withdrawn, and a small tunnelled catheter passed if possible. Considerable force may be employed in this maneuver ; for the instrument being guided can not make a false passage, and the benefit from ironing out the tortuous passage more than counterbalances the damage from well measured pressure.

Whether the tunnelled instrument passes or not, it is safer to tie the filiform into the urethra for 24 or 48 hours, at the end of which time tunnelled instruments up to 10 or 12 French may probably be passed and progressive dilatation instituted.

One other agent may be useful to overcome urethral spasm, viz : electricity. I have not known electricity to cure stricture or to cause the absorption of scar tissue ; but last year one of the members of your Society, Dr. Hickling, called my attention to the fact, which I have since seen demonstrated by Dr. Chetwood, that very mild electrical currents—five or ten milliamperes—will sometimes (not always) relax very tight strictures that fail to respond to any other form of treatment. Such are the methods of avoiding operation in certain cases of tight stricture ; methods brilliantly

successful in certain instances, but neither practicable nor profitable in others.

The complications of stricture, such as stone, infiltration of urine, periurethral abscess, etc., modify the prognosis of the disease as well as its treatment; but let us pass these by and turn our attention to the more interesting subject of the remote prognosis of stricture. Suppose the patient refuses our treatment, what are his prospects? Or suppose we have successfully dilated or cut the stricture, will it remain well or will it recur? Such are the questions one must be prepared to answer.

The location of the stricture makes all the difference. If it lies at or in front of the peno-scrotal angle, the chances are that it will contract very slowly and will never become sufficiently tight to cause retention. Such a stricture is likely to be resilient and difficult to cure without urethrotomy; yet if once fully dilated, or cut and kept open by sounds for three or four months, a permanent cure may be confidently expected.

But strictures that lie deeper than the peno-scrotal angle, strictures of the bulbous urethra and of the bulbo-membranous junction, promise a far graver history. If neglected they cause retention with all its horrors, chronic hypertrophic cystitis, dilatation of the kidneys and ureters from back pressure of the urine, pyelo-nephritis, abscess of the kidney, of the prostate, periurethritis, infiltration of urine, epididymitis, and death by urinary septicemia, a combination of sepsis and uremia.

Such strictures if taken in time and dilated by sounds often resolve with marvellous rapidity, in marked contrast to the stubbornness of anterior strictures, but after dilatation the contrast is even greater, for no matter how smoothly the canal is ironed out, no matter how thorough the apparent cure of a stricture in the deeper portions of the urethra, it will almost inevitably relapse. Sooner or later gleet reappears, then dysuria, then retention. The interval of perfect health may be months; it is more likely to be years, but all the while stealthily and unsuspected recontraction progresses until 5, 10, 20 years after the passage of the last sound, once again there is retention and the cycle is complete.

In estimating the quality of this utterly bad prognosis for stricture of the bulbous and the membranous urethra three factors deserve consideration, viz: the nature of the stricture, the thoroughness of dilatation and the duration of treatment.

The nature of the stricture, its density, its extent, its degree of contraction, its gonorrheal or traumatic origin ;—all these factors bear upon the ultimate prognosis. The old, dense, tortuous stricture, involving inches of the urethral wall and admitting only a fine bougie, may be expected to recontract after treatment more rapidly and more viciously than a stricture of softer tissue, of larger caliber or of less extent. The difference is measurable in years. For example, traumatic stricture often contracts so tightly as to cause retention within a few months of the injury. Such a stricture fully dilated recontracts with equal speed and a few months more suffice to bring on renewed retention. Gonorrheal stricture moves more slowly. Indeed, the patient with gonorrheal stricture may go on for months, even for years, suffering repeated retentions, relieving these by hot sitz baths or by an occasional poke with a very fine catheter, and successfully avoiding for an indefinite period any real relief by dilatation or operation. Such a plan of action is, of course, successful chiefly in deluding the patient. It only delays the surgeon—for it can not check the gradual progress of ascending renal infection—and it leads ultimately to perineal section under most unfavorable circumstances, or to death by urinary septicemia ; perhaps to both. Yet the struggle may be continued for five or ten years, though it may be shorter. Exceptionally, the very first retention causes infiltration, and so requires immediate section.

The interval of relief that follows the dilatation of a stricture depends—as we have just seen—in part upon the nature of the stricture. If treated similarly, traumatic strictures recontract much more rapidly than less fibrous ones. But the element of sufficient dilatation enters very largely into the prognosis. If the stricture is sufficiently dilated it will not recontract for months or years. If it is not sufficiently dilated recontraction begins promptly.

What then is sufficient dilatation ? This implies two things : (1) that the stricture shall be dilated so widely that it no longer grasps a full-sized sound. This, for an adult, varies from 27 to 32 French ; (2) that it shall remain thus dilated for three months. In other words, after the stricture has been dilated to full size by the introduction of sounds at intervals of from three to ten days, the patient is dismissed for a month. If the full-sized sound then passes readily the interval is made two months, then three months ;

then, if all is well, the patient may be assured that his stricture is quite dilated. But he may be equally assured that, no matter how free from symptoms he is during this time, his stricture will surely recontract unless he passes a sound once in six months or once a year for an indefinite period. This course of after-treatment is the only possible assurance of safety. It may be that, after many years of such treatment, the tendency to recontraction will be finally and permanently conquered; but we lack certain assurance of this, and, therefore, are not justified in promising the patient that he will ever be free from the necessity of celebrating New Year's and the 4th of July in thus calling up old memories.

Such, generally speaking, is the prognosis of urethral stricture; often grave; always dependent upon proper surgical treatment.

Dr. F. R. Hagner expressed appreciation of the paper. One point, however, the essayist had failed to mention—the passage of a sound and massage over it, in order to cause a more rapid absorption of the scar tissue. The removal of scar tissue from the membranous urethra was very essential. About a year ago Dr. Hagner was consulted by a patient who was operated on 8 years before, but the scar tissue had not been dissected out. As a result the patient had trouble, and an instrument was passed with much difficulty. He operated and dissected out the tissue, and the man's urethra was now perfectly smooth. An apparently impassable stricture could sometimes be passed by filiform bougies, with the aid of the cystoscope.

Dr. J. Ford Thompson said that Dr. Keyes always presented a most interesting subject, but he was so conservative that he left little opportunity for criticism of his cases. He had not spoken in detail of operative methods. Dr. Thompson agreed with him as to treatment. In spite of every caution, however, one occasionally got unfortunate results. Only two weeks ago, he operated on a man who weighed about 300 pounds, and whose scrotum was as large as one's head—it was riddled with sinuses. A satisfactory examination could not be made. He did an external urethrotomy after passing a filiform, and then using an instrument which he had used for years in these cases to make a preliminary cut, so as to enable him to use a larger instrument. The man did badly from the start—within 48 hours a diagnosis of surgical kidney was made. He died at the end of 10 days. The autopsy disclosed conditions which made it a wonder the man lived as long as he did—the right kidney was much contracted

and contained pus; the left was about one-half its normal size, and was in reality a pus cavity in which was a coral-like stone. Dr. Thompson would not have operated if he could have made a positive diagnosis, but this was impossible, in spite of repeated examinations, and although the man was in hospital several weeks. All such cases died; the patients could not stand any operation.

Every case of stricture which resisted treatment in any way should be promptly operated on. He had seen cases in which the mere introduction of a sound up to the beginning of a stricture caused urethral chill; Dr. Acker would remember such a case. Here, cocaine and other remedies were tried in vain. Subsequently, external urethrotomy was performed, and the patient thereafter experienced no difficulty. The result was perfect, and, in fact, this was his usual experience in these cases. This treatment should be used in all cases of resisting stricture, cutting deeper in anterior than in posterior strictures. Gradual dilatation often succeeded, using a number 14 at first, and gradually increasing the size. The Otis instrument was useful, and, at the same time, dangerous. Our present methods were different from those in vogue in Otis' time. Dr. Thompson knew of an instance in which Otis performed internal urethrotomy on a man who had flakes in his urine, but who could take a 32 sound; such a practice was inexcusable.

Syme used to say that if a man could pass a drop of urine, a sound could be passed; this statement was erroneous, as we all knew of cases in which the sound could not be passed in any possible way. In such cases an operation must be done without a guide—a very nice and difficult operation. Posterior catheterization might help in some cases; he had used it when there was retention of urine. [He described the method which he used, and discussed the Whitehead operation.]

He doubted the propriety of dissecting out cicatrices in the urethra, principally on account of the uncertainty as to whether a good union would result. When an operator said that he resected a quarter or a half of an inch of the deep urethra and got good results, when the wound was bathed in abnormal and, perhaps, purulent urine, he was claiming a great deal. Dr. Thompson was not a believer in primary union in the urethra, and the correctness of the conclusion was abundantly proved by hypospadias operations. Exsection of cicatricial tissue was rarely performed. A better way was to split the canal, and keep the lumen open by instruments. To secure the best results the canal must be over-dilated; failure was often due to the fact that the surgeon passed bougies up to the size of a 26 French, and then desisted, or the patient discontinued treatment. On the contrary, if a cure was to be brought about, the canal must be over-dilated, and the

dilatation must be kept up by the occasional passage of an instrument at regular intervals for months or even years.

This was a nice field for surgical work, and one which held great possibilities for good or harm. Accidents would sometimes occur, but when they did, they were usually unavoidable, as in the case he had related. The kidneys were almost invariably at fault in his bad cases.

Dr. Keyes, in closing the discussion, said that he had started to write upon the subject of prognosis only ; but he found that he had to include the subject of treatment. He did this, however, in a subsidiary way, treating of the subject in connection with prognosis. Hence, the reason why he did not go into the details of surgical treatment. He was very glad that he did not, however, as it had enabled him to hear an able discussion of the subject from Dr. Thompson.

All were agreed that the passage of the sound was the essential point in the treatment of stricture ; every case should be cured in this way, if possible ; if it was impossible, operate, and dilate afterward. The essential points in dilating the urethra were these : *a.* Dilatation should be preceded by the administration of a urinary antiseptic, *e. g.*, urotropin, 10 or 15 grains ; *b.* Use gentleness during the passage of the instrument ; never use forcible divulsion ; *c.* After the passage, endeavor to seal up the cracks and fissures by the injection of a 1 to 1,000 solution of silver nitrate. These precautions would go far toward preventing the dreaded urethral chill. As to Dr. Thompson's patient weighing 350 pounds, Dr. Keyes had one once, and, fearing to use ether, he employed cocaine. It was important to remember that infiltration of urine was of inflammatory origin, and not due to obstruction. [He related a case in point.] The infiltration was due to leakage through the inflamed or diseased part of the urethra, not to obstruction.

Resection of the urethra was rarely required ; he had done it in only one instance, and then, so far as he knew, he got primary union. Indurated masses, if many or large, should be removed. It was not necessary, though, as a rule, to divide the urethra. The attempt should always be made to bring the ends together, so as to secure a smooth roof for the urethra, as the roof was its "surgical wall." The point of an instrument hugged this wall during introduction, and it was the guide into the bladder. Hence, to facilitate the subsequent introduction of instruments, the roof should be made as perfect as possible.

REPORT OF THE COMMITTEE ON EDITING THE
TRANSACTIONS, FOR 1903.*WASHINGTON, D. C., *February 3, 1904.*

To the MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

The Committee on Editing the Transactions has the honor to submit the following report for the year 1903 :

Six numbers of the WASHINGTON MEDICAL ANNALS have been published during the year, completing a second volume. The total pages for 1902 were 497, for 1903 were just 500. The cost of publication for 1902 was \$857.61, for 1903 was \$842.82, nearly \$15.00 less ; the less amount being due to the fact that at the inception of the journal it was necessary to provide blanks and stationery, some of which is still in hand. The receipts from advertisements, &c., during the year 1902 were \$101.60, for 1903 were \$102.50. The net cost of publication, therefore, for 1902 was \$756.01, for 1903 was \$740.32, about \$16 less. The Index, however, for 1903 was not made up in time for printing in No. 6, and must, accordingly, appear in the next number ; it would have made about seven pages of printed matter and cost about \$10.00, which should, therefore, be included in the expense for 1903.

The expense for 1903 has been somewhat increased because of the larger membership. The Committee has had no typewriting done, saving that expense by careful preparation of manuscripts received for the printer ; but it does protest against manuscripts in pencil and written on both sides of the sheet. The Committee sends proof to authors only when requested, because some authors delay its return and thus delay the printing, and some authors make unnecessary corrections, which increase the cost of publication. The manuscript, as received by the Committee, is presumed to be ready for the printer, except as it may need some grammatical reconstruction and correction of spelling, dates, &c.

For two years we have been paying third-class postage, namely one cent for each two ounces, on such copies as had to be sent by mail. Most of the copies have, however, been distributed by hand at a cost of two cents a piece. The Postoffice Department declined two years ago to give us the second-class rate, which is one cent a pound, declined to do so because we had no sufficient subscription list. We are told that if we omit advertisements

* Read February 17, 1904.

we can have the benefit of the second-class rate ; but we find that the receipts from advertisements much more than cover the possible saving in postage. We would suggest that perhaps the Executive Committee might have better success than we have had. We know that some other journals which have only a small subscription list, and also receive advertisements, get the benefit of the second-class rate. It is not at all likely that our subscription list will ever be much larger.

It would seem that we should have a larger advertising patronage. We would be pleased if such patronage would cover the entire cost of publication, as it probably does for some journals ; and we would ask that members personally interest themselves in this matter. Dr. Jackson has charge of this part of our work.

We appreciate the honor of our re-appointment for the current year, and shall endeavor as heretofore to make the ANNALS worthy of the Society for which it stands.

D. S. LAMB,
WALTER A. WELLS,
V. B. JACKSON,
Committee.

REPORT OF EXECUTIVE COMMITTEE OF MEDICAL SOCIETY, DISTRICT OF COLUMBIA.*

February 24, 1904.

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Gentlemen : The Executive Committee begs leave to invite the attention of the Society to a bill recently introduced into the United States Senate (S. 4346) entitled "*A Bill to allow physicians who have practiced ten years or more in any State of the United States to practice in the District of Columbia without examination, on payment of fee, who can furnish a certificate of good moral character from the medical board of the State in which they practiced.*" In the opinion of the Committee the enactment of this bill will tend to lower the standard of qualifications which has been set by the act of June 3, 1896, and seriously to interfere with any movement looking toward the recognition by States and Territories of licenses issued by the Board of Medical Supervisors of this District. The Committee has referred this bill to its Subcommittee on Legisla-

* Made February 24, 1904.

tion for the purpose of having a suitable substitute framed. Pending the framing of such a substitute, however, the Executive Committee recommends that the Society file with the Senate Committee on the District of Columbia a protest against the enactment of the pending legislation in its present form, and that the Executive Committee be authorized to do whatever may be possible to make such protest effective.

The Executive Committee invites the attention of the Society to a request received from Dr. Emory A. Bryant for support in an effort to secure the passage of a bill amending the statutes relating to patents, relieving medical and dental practitioners from unjust burdens imposed by patentees holding patents covering methods and devices for treating human diseases, ailments and disabilities (S. 4256). The purpose of this bill is *to prevent the issue of patents covering operations on the human body or of methods to be employed in such operations*. The Committee recommends that the Society forward to Dr. Bryant a letter expressing its approval of the purposes of this bill and wishing him success in his efforts to secure its enactment.

Respectfully submitted,

S. S. ADAMS, M. D.,

Chairman.

REPORT OF THE COMMITTEE ON PHARMACY.*

WASHINGTON, D. C., *March 1, 1904.*

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Gentlemen: Your special committee, appointed to co-operate with the Commissioners of Pharmacy in framing a bill to regulate the practice of pharmacy and the sale of poisons in the District of Columbia, begs leave to report that it has completed its labors, and to submit herewith the bill formulated by the Commissioners of Pharmacy as the result of conferences between them and representatives of various organizations more or less directly interested in the proposed legislation.

The bill is in every way an advance on existing law. Among the features of it of especial interest to this Society may be cited the following:

As the board for licensing pharmacists is at present organized

*Read March 2, 1904.

three of its members must be pharmacists and two physicians. In the proposed law the board actually charged with the duty of conducting examinations is made up entirely of pharmacists. In order, however, to give the community generally, and especially the medical profession, an opportunity to insure the maintenance of a proper standard, the work of the examining board is made subject to the supervision of a board of supervisors, which supervisory board has authority to review the work of the examining board and is the board from which all licenses issue. The supervisory board, to be known as the Board of Supervisors in Medicine and Pharmacy, is merely an enlargement of the present Board of Medical Supervisors and is made up of the presidents of the three medical examining boards, the president of the Board of Pharmaceutical Examiners, and two laymen, one of whom must be a lawyer. It will be noted that the relation of the Board of Pharmaceutical Examiners to the Board of Supervisors in Medicine and Pharmacy is, in all respects, the same as the relation between each of the Boards of Medical Examiners and the Supervisory Board.

The right which physicians heretofore had to be examined for registration as pharmacists, even though they had never studied pharmacy, and had had no practical experience in compounding and dispensing physicians' prescriptions, is not continued under the proposed law. It hardly seemed proper to require a pharmacist desiring registration to be a graduate of a school or college of pharmacy, and to have had not less than three or four years' experience in pharmacy under the instruction of a pharmacist before he could be admitted to examination, and at the same time to allow a physician to enter such examination with no more knowledge of the compounding and dispensing of drugs than is required in an ordinary medical course and with absolutely no experience in such work.

The proposed law is quite as strong in its regulation of the sale of poisons as it is in its regulation of the practice of pharmacy. Special effort has been made to prevent the sale of such drugs as cocaine, morphine, opium and chloral hydrate in such manner as to afford a favorable opportunity for the development of a drug habit. To that end, subject to a few more or less unimportant exceptions, no person may sell, furnish, or give away any of the substances mentioned, or any preparation containing the same,

“except upon the original, written order of a lawfully authorized practitioner of medicine, dentistry or veterinary medicine.” As a correlative of this provision—one indicated by experience in other jurisdictions to be necessary—no physician, when he knows or may by reasonable inquiry ascertain that any person is addicted to the use of cocaine, morphine, opium, or chloral hydrate, may lawfully furnish to or for the use of such person or prescribe for such person the drug to which he is addicted “except as it may be necessary to furnish or prescribe such drug, compound, or preparation aforesaid for the cure of drug addiction aforesaid, or for the treatment of disease, injury or deformity.” Proper provisions are inserted to prevent the abuse by dentists and by veterinary surgeons of their right to prescribe the drugs mentioned.

Pharmacists are required by the proposed law to mark every package of any kind of drug which they may dispense, whether poisonous or not, with the name of the drug or drugs which it contains or with directions for using the same. Proprietors of drug stores are required to keep in a suitable book or file for not less than three years the original of every prescription compounded or dispensed at such store. They are thus substantially given the ownership of the prescription. They are required, however, to furnish to the prescribing physician, or to the person for whom the prescription was compounded, a true and correct copy of it.

The sale of medicines, etc., and of implements, appliances, etc., for the treatment of disease, injury or deformity, by peddling, by public outcry, or by vending in the street is forbidden.

The Police Department and Corporation Counsel are required by the proposed law to enforce its provisions, including those which relate to the revocation of licenses.

Your committee recommends that this bill be approved by the Medical Society and that the Executive Committee be authorized to do whatever may be necessary to further its enactment.

Respectfully submitted.

Z. T. SOWERS, *Chairman.*

In Memoriam.

DR. EMIL, ALEXANDER DE SCHWEINITZ.*

With saddened hearts we join in paying tribute to the memory of DR. EMIL A. DE SCHWEINITZ, a faithful and distinguished leader in scientific medicine and higher medical education, whose death will be deeply deplored not only by the local profession, but by all engaged in medical research both at home and abroad.

Emil Alexander de Schweinitz, son of E. A. and Sophia A. Herman de Schweinitz, was born January 18, 1864, at Salem, N. C. His father was a prominent Bishop of the Moravian Church, and a descendant of an ancient aristocratic German family known in Court circles as Von Schweinitz; indeed, such was the prefix of his family during his early college and university days. Dr. de Schweinitz was educated at Nazareth Hall and the High School and the Moravian College at Bethlehem, Pa.; later, he entered the University of North Carolina, from which institution he received the degree of Bachelor of Arts in 1882, and of Doctor of Philosophy in 1885, having filled, in the years 1884 and 1885, the position of Assistant Professor of Natural History. He went to Europe in 1885, pursuing his studies more especially in organic chemistry at the University of Berlin and Göttingen, receiving the degree of Doctor of Philosophy from the Universities of Göttingen, in 1886; his inaugural dissertation being on the subject of "Oxylderivates of Thiophens and Benzols." In 1886-7, he taught Chemistry at Tuft's College, near Boston, and in 1887-8, at the University of Kentucky. In August, 1888, he accepted a position under Professor Wiley, in the Bureau of Chemistry, Department of Agriculture. He entered the Medical Department of Columbian University and received the degree of M. D. in 1892. In January, 1890, he was transferred to the Bureau of Animal Industry, and, fully equipped for the earnest work, organized the Biochemic Division, and, as Director during the past fourteen years of this important Government Laboratory, achieved fame and distinction as one of the most original and

*Read before the Medical Society of the District of Columbia, February 24, 1904, by the Chairman of the Committee.

successful investigators in the domain of experimental medicine, more especially in connection with immunity, serum therapy and protective inoculations.

His labors in comparative pathology while primarily of great benefit to animal industry, are also of the utmost importance to the human race; and his most important work will always be remembered in connection with his researches in the prevention and cure of tuberculosis among animals and man. While unsuccessful attempts with antitubercular inoculations had been made by Falk in 1883, Koch and Trudeau in 1890, and partial success with attenuated tubercle bacilli had been reported by Darenberg, Grancher, Martin, Courmont, Dor and Trudeau, between 1889 and 1894, it was de Schweinitz's good fortune to publish in the *Medical News*, December 8, 1894, the first positive announcement that it was possible, not only in small experimental animals, but also in cattle, to produce, by vaccinating with attenuated human germs, immunity to a subcutaneous inoculation of tuberculous material of bovine origin.

His experiments show that at that time he had a human bacillus which, after growing for several generations, upon glycerine-agar, about two months to each generation, between the 14th to the 20th generation had become so attenuated that it no longer produced disease in guinea pigs; indeed the degree of immunity was so complete that they were able to resist inoculation with bovine tubercle material. He also fed these attenuated bacilli to a calf, and injected them into the blood of a cow, without producing the disease in question. In his subsequent work, 1895-'6, he found that even large doses of the attenuated human germ were not virulent for cattle, horses and monkeys. He continued his immunizing experiments in the case of one cow, from July, 1894, to September 20, 1898, which had received altogether over 20,000 c.c. of attenuated tubercle culture. This animal, on February 22, 1898, received an injection of virulent bovine material, and the immunity was so complete that upon being killed September 20, 1898, Dr. Schroeder failed to find the slightest evidence of tubercular infection.

As a result of these investigations, and realizing as he did that a preventive inoculation from one disease does not protect from another disease, Dr. de Schweinitz became convinced that if attenuated human tubercle bacilli can produce immunity against

virulent bovine bacilli, there must exist a very close relationship, if not absolute identity, between these germs, and that tubercle bacilli from various animals, especially of bovine origin, may produce tuberculosis in man.

When, therefore, Koch in 1901 practically declared that tubercle bacilli derived from cattle were non-virulent for man he found in de Schweinitz one of his strongest opponents. The result of his researches on the intercommunicability of human and bovine tuberculosis were presented to this Society April 29, 1903, and absolutely disprove the dicta of Koch.

In these experiments he demonstrated positively that tubercle bacilli may be obtained from man, which will produce generalized tuberculosis in cattle, and the infectiousness of bovine tubercle bacilli to man was indirectly demonstrated by inducing experimental tuberculosis in monkeys.

In the meantime Dr. de Schweinitz had given much earnest study to the subject of serum therapy, and at a meeting of the Medical Society held February 2, 1898, he presented some of the results in the treatment of tuberculosis, with "anti-tuberculosis serum" obtained from the serum of horses which had previously been inoculated with large doses of the extract of attenuated tubercle bacilli. He had learned in his experiments upon tuberculous guinea pigs that when this serum was given with tuberculin it would usually retard or prevent the characteristic reaction, and in addition also prolong their lives, and naturally concluded that if the lives of experimental animals can be protected for six months to two years, and even longer, there was good reason for assuming that similar methods of treatment would give equally satisfactory results in man.

Through the courtesy of several physicians the serum prepared by him was used in 45 patients, and the effects upon the physical signs, temperature, cough, appetite, weight and the number of tubercle bacilli in the sputum were carefully recorded.

Time will not permit to present the details, except to say that 33 per cent. of these cases were greatly benefitted and improved, and the remainder showed neither good effects nor bad results. In several cases, where the disease was decidedly advanced and almost beyond any treatment, the patients desired the use of the serum continued, claiming it had a bracing effect, which they could not secure in any other way.

In 1900 Dr. Stubbett of the Loomis Sanitarium for Consumptives presented before the Climatological Association a report of 190 cases which had received the serum treatment ; of these about 25 per cent. were discharged as cured and quite a large proportion improved ; he also emphasized the important fact, that those cured with the use of serum were able to return to their homes and resume their ordinary mode of life without relapses, while cases apparently cured by other methods of treatment did not remain well for so long a time. In other words, he believed that the serum established a more permanent immunity than could be secured in any other way.

While it is a difficult matter to determine how much of a given cure is due to specific medication and how much to climate, hygienic regimen and proper food, it appears to be the consensus of opinion of those best qualified, that if a material is at hand, which will aid and reinforce the natural processes of the body in curing tuberculosis, the material should be used.

Dr. de Schweinitz himself did not think that we can hope to secure a specific for tuberculosis, but did believe that a properly prepared serum will neutralize and counteract the destructive influences of some of the important poisons evolved by the tubercle germs.

In the light of these facts, it is to be regretted that Professor Flexner, in his attempt in the *Philadelphia Medical Journal* February 1903, to give due credit to American investigators in the field of "immunization from tuberculosis" should have been ignorant of this splendid work, especially when Trudeau himself, as early as 1897, declared that : " Dr. de Schweinitz was the first to call attention to his results in protecting guinea pigs by means of living attenuated cultures, and although my results, thus far are as good as his, my experience in the past four years shows that a very marked degree of increased resistance to tuberculous infection can be induced in these animals as well as in rabbits, by such preventive inoculation. At present if twenty animals be inoculated with this attenuated germ which has been grown for six years continuously on artificial media, with perhaps one or two exceptions, all survive and ultimately recover completely."

In the interest of justice and truth let us follow the example of Dr. Salmon, and correct the history of this subject whenever an opportunity offers.

If de Schweinitz had accomplished nothing more, the world and preventive medicine would be his debtor, and whatever success may yet be achieved in securing artificial immunity in this fatal and wide-spread malady, the pioneer work of this modest man will always stand out as a monument of patient, honest, thorough and painstaking industry, and may well serve as a beacon light for his pupils and followers in the battle against infectious diseases.

It is given to but few men to lead such a life of usefulness, for apart from the work briefly outlined, his researches in comparative pathology and the serum treatment of swine plague, hog cholera and glanders are doubtless of great economic value.

He was a member of the Biological Society, Entomological Society, of the Washington Section of the American Chemical Society, of which he was the president in 1897; of the American Bacteriological Society, of the German Society for Chemists, of the International Applied Chemical and Biological Society, of the French Society of pure Chemistry, the Medical Society of the District of Columbia and the Washington Academy of Sciences. He was the author of many excellent papers on the products of bacteria and various antitoxins and a list of his contributions prepared by Professor Stiles will soon be published.

Dr. de Schweinitz represented the United States at various times at International Medical Congresses and Sanitary conventions. He was United States delegate to the fourth Tuberculosis Congress in Paris in 1898, of which he was one of the Honorary Vice Presidents; to the Tuberculosis Congress in Berlin in 1899, of which he was also Vice President, and attracted the personal attention of the German Emperor; he also represented this country at the International Medical Congress and the Congress of Hygiene in Paris in 1900.

In 1893 he was appointed Professor of Chemistry and Toxicology in the Medical Department of the Columbian University, and later Professor of Bio-Chemistry in the Graduate School of that institution. In 1897 he was chosen Dean of the Medical Department. His method of teaching was scientific and yet eminently practical, his pleasing personality, simple but dignified manner, and, above all, his sincerity and earnestness could not fail to inspire and impress his students and secure for him their unlimited confidence and respect. In all his work he evinced the highest degree of

scientific accuracy combined with calm judgment and discrimination, qualities which are not only of the utmost importance in research work, but also fitted him so eminently for the promotion of higher medical education, and for the position of Dean of his school, in planning and equipping the new College Laboratories and the University Hospital.

In addition to his manifold duties, but acting upon the lofty principle that the education and betterment of people in sanitation is not less humane than the healing of the sick, he found time in 1894 to make elaborate studies in the Pasteurization and sterilization of milk. In October, 1897, he accepted the appointment as a member of a Committee to supervise the establishment of Sanitary Dairies and assisted the Committee, and more recently as Chairman of the Milk Commission of the Medical Society, in very important labors, more especially in the bacteriological examination of the milk, and those who are familiar with the technique of such work will appreciate the immense task which he performed uncomplainingly day after day for over six years.

His death in the prime of life and at the height of his usefulness seems inexpressibly sad, but his gentle, courteous, upright personality, his conservative and truly scientific spirit and, above all, his distinguished achievements in the career to which he had consecrated his life, will be an inspiration and glorious example for all engaged in preventive medicine. He has gone to his reward, and the world in which he lived and science and humanity are better for having known him.

WHEREAS: The Medical Profession and the Medical Society of the District of Columbia have sustained a serious and irretrievable loss in the death of Emil Alexander de Schweinitz, Professor of Chemistry, and Toxicology in the Columbian University, who died at the University Hospital at 11.30 o'clock, February 15, 1904, from acute nephritis:

Be it resolved, That this Society fully realizes the importance of the work to which Doctor de Schweinitz had devoted so great a share of his scientific activities, notably in the etiology, immunity and prevention of tuberculosis and other infectious diseases, researches which were duly recognized and highly valued by scientists both at home and abroad.

Resolved, That we hereby express our profound regret and sincere sorrow for the lamentable event which has deprived the

scientific world of such a distinguished and successful investigator in the field of preventive medicine.

Resolved, That we extend to his bereaved relatives our earnest and sincere sympathy.

Resolved, That this Society participate in the proposed Memorial Meeting to be held under the auspices of the Columbian University in honor of Professor de Schweinitz on Saturday, March 5, at 8 p. m.

GEO. M. KOBER,
D. K. SHUTE,
A. F. A. KING.

EMIL ALEXANDER DE SCHWEINITZ AS AN AUTHOR.*

By CH. WARDELL STILES, PH. D.

From the literature at my disposal, I find that Dr. de Schweinitz has published sixty scientific and educational articles. Of these he was sole author of forty-three and joint author of seventeen. He also has four joint papers in manuscript which will be issued as posthumous publications, thus giving a total of sixty-four original contributions. Sixty-two of his papers are in English, two in German, and one in French. Most of his articles were published by the United States Department of Agriculture, but many of them appeared in various American or European scientific and medical periodicals. Quite a number of the papers were printed in two or more different journals, and in addition to this, many of them are reviewed in the prominent periodicals.

It is rather a striking character of his papers that most of them were short. In fact, to those of us who knew him intimately he not infrequently remarked that he disliked to write for publication and preferred to spend his time in laboratory work or in didactic teaching. As a natural result of this tendency the total number of pages of print accredited to him is not so great as one would naturally expect from a man of his ability and activity. We should however recall that his subject was one often requiring months of patient work to give results which may be summarized in a few lines, and that the long and often tedious accounts of minute details necessary in certain other branches of biologic work are not so necessary in biochemistry.

Dr. de Schweinitz personally considered that his work on im-

*Read at the Memorial Meeting at Columbian University, March 5, 1904.

munity was the most valuable of his contributions to science, and in this opinion we will all doubtless agree with him. Aside from this one subject in general, he will probably be known better and longer for his studies on tuberculosis, especially from standpoints of immunity, biochemistry, bacteriology and public health, than for his work on any other single disease. Twenty-eight of his titles, or about 44 per cent. of all the articles he ever wrote, deal directly with this subject. During the latter part of his life, his thoughts centred upon this malady, and a few days before his death he completed three manuscripts upon tuberculosis, which will probably be the most extensive articles he ever penned. In looking over modern literature on tuberculosis, one is struck by the fact that authors in general have not given to him the full credit due to him for his investigations upon this malady.

Next to his writings on tuberculosis come his papers on hog cholera, with special reference to its etiology, its biochemistry, and the subjects of immunity and serum therapy. His titles on this disease number eleven in all, or nearly 18 per cent. of his publications.

Thus 61 per cent. of all of his articles deal with two diseases, tuberculosis and hog cholera. The former, a disease both of man and of domesticated animals, the latter confined to domesticated live stock.

The remaining twenty-two articles cover a diversity of subjects: Osage oranges, glanders, corn-stalk disease, milk, butter, disinfection, culture media, serum therapy, educational matters, etc.

From a study of his bibliography and his work, it seems that Dr. de Schweinitz will be known to various professions: To the medical profession he will be known more particularly because of his work on immunity, tuberculosis and serum therapy. To the veterinary profession he will be known more particularly because of his work on immunity, tuberculosis, glanders, hog cholera, swine plague and serum therapy. To the sanitarian he will be known more especially because of his studies on tuberculosis, disinfectants and adulterations. To the chemist he will be known chiefly because of his practical work in chemistry as related to medicine. To the bacteriologist he will be known chiefly because of his work in the chemical side of bacteriology and because of his experiments in the transmission of tuberculosis.

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Wednesday, February 17, 1904.—The President, Dr. Richardson, in the chair; 45 members present.

Dr. D. S. Lamb presented the annual report of the Committee on Editing the Transactions. (See p. 132). The report was accepted, and a vote of thanks extended to the Committee for its able and painstaking work in connection with the publication of the transactions.

The Committee was authorized to reject manuscript written illegibly, or on both sides of the sheet, or in pencil, or otherwise unsuitable for the use of the printer. The Corresponding Secretary was requested to call the attention of those about to read papers to the propriety of preparing them so that they would be acceptable to the Editing Committee.

The Treasurer was granted an appropriation of \$10.75 to pay for printing letter heads and envelopes for the use of the Society.

The following letter from the Health Officer was read:

“WASHINGTON, D. C., *February 17, 1904.*

“DR. C. W. RICHARDSON,

President Medical Society, D. C.

“Dear Sir: At a recent meeting of the Committee on the Prevention of Consumption, the following resolution was passed:

“*Resolved*, That in the opinion of this Committee, physicians practicing medicine in the District of Columbia should be required to notify the Health Officer of the name, age, color, and address of every case of pulmonary tuberculosis coming under their professional care, as soon as the diagnosis is established.”

“A copy of this resolution has been forwarded to the Commissioners, and is now before the Health Department to be reported upon. The Committee on Public Health of the Board of Trade had, prior to this action on the part of the Committee on the Prevention of Consumption, made a recommendation to the same effect:

“‘That all cases of Consumption be reported to the Health Department.’

“I shall appreciate it very much if the Medical Society of the District of Columbia will inform me of its opinion with respect to this matter and, if the Society be of the opinion that all cases of pulmonary tuberculosis should be reported, if it will advise me further what action, if any, should ensue upon the receipt of such report and what obligations, if any, should be imposed upon the person reported as suffering from the disease just mentioned.

“This matter, it seems to me, is of especial interest to the medical profession, and, therefore, I would like to present the views of the profession to the Commissioners with my report upon the resolution now before me. Respectfully,

“WM. C. WOODWARD, M. D., *Health Officer.*”

The communication was referred to the Executive Committee for consideration.

The Chair was authorized to appoint a committee to take suitable action on the death of Dr. E. A. de Schweinitz. The following were appointed: Drs. Kober, A. F. A. King and Shute.

The following cases and specimens were presented:

By Dr. Balloch: 1. Retroperitoneal Sarcoma. 2. Laminectomy. Discussed by Dr. D. S. Lamb. See pp. 100 and 103.

By Dr. J. Ford Thompson: VESICAL CALCULUS.

Man, 50 years old. Operated on February 17. First examined two weeks before. After hearing the history, Dr. Thompson made a diagnosis of vesical calculus before he introduced the sound. In July last, patient had renal colic; after the pain subsided the bladder symptoms came on, and increased in severity. Urine loaded with flakes. Cystitis. Urine frequently stopped suddenly, and patient had to use catheter. The diagnosis was—a small stone falling over the urethral opening. The searcher failed to give evidence of the presence of the stone. In using an Ultzmann's irrigator, however, he hit the stone, and the diagnosis was confirmed. At the beginning of the operation, the stone was located in the prostatic urethra. He performed median perineal lithotomy, this operation being preferable to others in this case. The stone was found loose in the bladder, and was removed with forceps. Dr. Thompson showed the specimen. It had something of the appearance of a glass stopper. The nucleus was of uric acid; outer portion was phosphatic.

Dr. Oscar Wilkinson read the paper of the evening. Subject, "A study of Headache in relation to Diseases of the Nose and Naso-pharynx." Discussed by Drs. Belt, D. S. Lamb, McKimmie, R. S. Lamb and C. W. Richardson. See p. 89.

Wednesday, February 24—The President, Dr. Richardson, in the chair; 44 members present.

Dr. Kober, for the Committee on the death of Dr. E. A. de Schweinitz, read the memorial prepared by the Committee (see page 137), and recommended that this Society hold its meeting in memory of Dr. de Schweinitz in conjunction with that to be held by the authorities of the Columbian University. The report was accepted and Dr. Kober was designated to act as delegate to the meeting from this Society.

Dr. S. S. Adams, Chairman, read a report from the Executive Committee. The report was accepted. See page 133.

Drs. Hickling, Reisinger and Jackson were appointed a Committee on Smoker, in connection with an address to the Society to be given by Dr. W. W. Keen, of Philadelphia, March 16.

Dr. Chappell presented a case and specimen: Gangrenous abscess of the lung. Report of autopsy by Dr. D. S. Lamb. Discussion was postponed until the next meeting. See page 105.

Dr. Blackburn read the paper of the evening. Subject, "Pachymeningitis Interna." Discussed by Drs. D. S. Lamb, S. S. Adams, Vaughan and J. Ford Thompson.

Wednesday, March 2, 1904.—The President, Dr. Richardson, in the chair; 75 members present.

The Treasurer's report for February was read; received, assessments, \$36.00; disbursed, printing, \$10.75.

Dr. Sowers, Chairman of the Committee on a New Pharmacy Law, read a report. See page 134.

Dr. Reyburn thought the proposed law objectionable in several particulars. It grouped together subjects which were not related to each other, namely, the sale of poisons and the regulation of the practice of pharmacy. These subjects should be presented to Congress as two separate bills. He also objected to the requirement that a pharmacist must renew his license every three years, and to the provision that a pharmacist, in order to be licensed, must be a graduate of a college of pharmacy. The bill also involved the subject of the practice of medicine. In these particulars the bill was defective, and he thought that the Society should not endorse it in its present form. He endorsed the portion relating to the sale of poisons.

Dr. Sowers said that the bill was first drawn up in skeleton. It consisted of two separate bills, one relating to the sale of poisons and the other to the regulation of the practice of pharmacy. At first he favored this division, but later, on finding that the pharmacists preferred that the two bills should be presented together as one, he changed his mind, and the wish of the pharmacists was carried out.

Dr. Woodward said that while he was not a member of any committee in connection with the bill, he had been kept informed as to the features of the proposed law. He was in favor of two separate bills, as he believed that the law could be passed more easily in this form. He emphasized the fact that the bill was a compromise measure intended to suit all the parties concerned; it could be altered by the Society without in any way reflecting upon the members of its committee. He endorsed the provisions relating to renewal of licenses, and to graduation from a college of pharmacy.

Dr. Motter also emphasized the point that the bill was a compromise measure; the attempt was made to harmonize all interests, and to eliminate objection in every possible way. He related the history of the formulating of the bill, and described the work done by the committee. He considered the objections raised by Dr. Reyburn, *seriatim*, and explained why it was thought best to insert these provisions in the bill. The bill, as it stood, represented 30 years' work of the American Pharmaceutical Association; it represented the peculiar needs of the District; and it had

been so framed as to meet the objections of the manufacturers, who had hitherto thrown obstacles in the way of any legislation upon the subject of pharmacy.

The report of the committee was accepted.

Dr. A. F. A. King announced with reference to the conjoint meeting in memory of Dr. de Schweinitz, that all members of the Society were invited to attend whether they received cards of invitation or not.

The following cases and specimens were presented :

By Dr. G. Wythe Cook : Abscess of the Liver. Discussed by Drs. D. S. Lamb and J. Ford Thompson. See page 114.

By Dr. D. S. Lamb : Enlarged Prostate.

The prostate was much enlarged, involving apparently the entire gland. Bladder much distended with urine, but ureters normal, showing that the back pressure had not been sufficient to affect them. From a man aged 70. Was admitted to hospital, and died next day. Except for some old pleurisy, calcareous coronary arteries of heart, and senile atrophy of kidneys, there was no *post-mortem* lesion of note. There was a history of some dysuria.

Dr. Chappell's case and specimen, Gangrenous Abscess of the Lung, presented at the previous meeting, was discussed by Drs. S. S. Adams, J. Ford Thompson and Snyder. See page 111.

Wednesday, March 9.—Dr. Richardson, the President in the chair ; 70 members present.

A letter from the Kentucky State Medical Association inviting this Society to send a delegate to a meeting to be held for the purpose of furthering unity in Medical Society journalism, was referred to the Editing Committee for consideration and report.

Dr. Anne A. Wilson read a communication in behalf of the Instructive Visiting Nurses' Society. See page 117.

The following resolution was adopted :

Resolved, That the Executive Committee be instructed (1) to inquire into the reasons for the decrease in the number of sanitary and food inspectors in the service of the Health Department, which would be effected if the current District appropriation bill were enacted by the Senate in the form in which it has passed the House of Representatives, (2) to ascertain the probable result of such decrease, and (3) if in the judgment of said Committee such decrease would not tend to promote public health in the District, to take such action as might be necessary to prevent such decrease from being made.

The Chair announced that W. W. Keen would address the Society on the evening of March 16, on "The Surgical Complications and Sequels of Typhoid Fever," and that the meeting would be followed by a smoker at Rauscher's.

The following cases and specimen were presented :

By Dr. Vaughan: Specimen showing the result of gastroenterostomy with the Murphy button. Discussed by Dr. Carr. See page 120.

By Dr. Shands: Foreign body in the lungs. See page 121.

Dr. F. R. Hagner read the paper of the evening. Subject, "The Bottini Operation; with Report of Fifteen Cases." Discussed by Drs. Snyder, E. W. Fowler, A. F. A. King, J. Ford Thompson, E. F. King, Carr and Mackall.

Wednesday, March 16.—About 225 members and visitors present.

Dr. Louis Mackall, Vice-President, called the meeting to order. The President and Dr. W. W. Keen having arrived, the President took the chair and introduced Dr. Keen, of Philadelphia, who addressed the Society on the subject, "The Surgical Complications and Sequels of Typhoid Fever." A rising vote of thanks was tendered Dr. Keen for his admirable address.

Wednesday, March 23.—The President, Dr. Richardson, in the chair; 50 members present.

The Chair announced the death of Dr. Wm. H. Hawkes, and appointed a committee, Drs. H. L. E. Johnson, F. V. Brooks, and H. T. Harding, to take appropriate action.

A letter from Dr. H. E. Tuley was read and referred to the Editing Committee.

A communication and MSS. from Dr. Frank Allport, of Chicago, was read and referred to the Executive Committee.

Dr. E. L. Keyes, Jr., of New York, addressed the Society on the subject, "The Prognosis and Treatment of Urethral Stricture." Discussed by Drs. F. R. Hagner and J. Ford Thompson. See page 122.

A rising vote of thanks was tendered Dr. Keyes for his able and instructive address. Dr. Keyes expressed his appreciation of this action of the Society in appropriate terms.

Editorial.

By an oversight the title pages for volumes I and II were not sent out at the proper time. They are enclosed in this number.

Medical Miscellany.

Central Dispensary and Emergency Hospital.—Dr. J. Dudley Morgan has been elected on the attending Staff to fill the vacancy caused by the death of Dr. W. H. Hawkes. He will have charge of the General Medical and Nervous Clinics. The Associates on these services will be Drs. Henry C. Macatee and J. D. Thomas, on the General Medical, and Dr. E. L. LeMerle, on the Nervous Clinic. On the annual reorganization of the Consulting and Attending Staffs, at the meeting of the Board of Directors in May, the personnel was unchanged, except that Dr. W. C. Woodward was elected on the consulting staff, in the place of Dr. H. L. E. Johnson.

S. M. BURNETT.

Army Medical Museum.—Some changes have been made in the arrangement of specimens. For instance: Those which illustrate *typhoid fever* have been grouped to show the disease in the first, second, third and fourth weeks; the cases of perforation of bowel; those in which the colon as well as the ileum was involved; lesions of spleen, lymphatic glands, &c.

Specimens illustrating *dysentery* have been grouped according as they appear to show the catarrhal, amebic, diphtheritic or specific forms and lesions of other organs beside the intestine, such as the liver in the amebic form.

The specimens that illustrate *tuberculosis* are grouped under the anatomical system to which they belong, as for instance, the nervous system, lymphatic, circulatory, respiratory, digestive, osseous, &c., and there is also some subgrouping.

Venereal diseases are also grouped, as far as practicable; the gonorrhoeal and syphilitic, and under each a subgrouping.

Some other new groupings have been made, as for instance, *leprosy*, *bubonic plague*, *cholera*, &c.; the *animal parasites*, the *vegetable parasites*, not including the bacteria.

Transparencies showing the vegetable micro-organisms are being placed in position at the windows.

The specimens illustrating *embryology* have been arranged in two cases, the models in one, wet specimens in another. The specimens showing abnormal development, *i. e.*, *monstrosities* have been arranged according to the classification of Hirst and Piersol.

Other changes are in progress.—D. S. LAMB.

WASHINGTON MEDICAL ANNALS

THE EARLY DIAGNOSIS OF POTT'S DISEASE.*

By FRANK P. VALE, M. D.,

Washington, D. C.

The best way to avoid overlooking Pott's disease is to keep constantly in mind the possibility of its existence. Within a few months two cases have come under my notice in which, even at an advanced stage, the affection had not been recognized, though both presented the typical angular deformity which could have been immediately identified. When the disease gives us such unmistakable evidence of its presence, there can be no possible excuse for a tardy diagnosis; yet no less an authority than Sir Frederick Treves, in a recent article in the *Practitioner* (London, 1903, page 1), relates having opened the abdomen of a patient, with persistent gastric symptoms, only to have his attention called a few days after the unsuccessful exploration to a "hump" on the back, which the nurse had accidentally discovered. And in both of the cases I have referred to the clinical history should have brought Pott's disease to one's mind.

The first case was that of a man aged 35. His chief complaint when he came to me was the loss of use of his arms. Ten months before, he had been thrown from his horse in stopping a runaway. For two weeks following the accident he had sharp pains between the shoulders. They disappeared then for a short time, only to reappear with renewed vigor. The loss of power in his arms began about three months after the accident. He was then easily exhausted; often it was necessary for him to get off his horse and lie down on the side of the road, thus obtaining relief from his pain. Three or four months later he began to suffer with an oppression and pain in the chest, especially on exertion. At times he could not hold up his head, and had to support his chin with

* Read before the Medical Society of the District of Columbia, March 30, 1904.

his hand. His voice became husky and his respirations wheezy, and about this time there developed a diplopia. An examination of his back revealed, at the cervico-dorsal junction, a well defined projecting knuckle. An interesting fact was the history of a localized tuberculosis of the testicle four years before—also of traumatic origin—which had necessitated removal of the organ. Twice, then, he had developed a localized tuberculosis following an injury, but had never shown any other tubercular manifestation.

The second case was that of a young man of 23. His first symptoms dated back four and one-half years. He often stumbled, and soon noted some weakness of the legs. His gait was so unsteady he was frequently accused of drinking to excess, and such reports came to the ears of his parents. From that time there has been a progressively increasing paraplegia. It is almost inconceivable that during all this time his back had never been examined. The pains in his legs had been called rheumatic; when he came to me he complained especially of severe pain over the crest of the left ilium. The final heroic effort in his behalf had been made a short time before. He was circumcised with the hope of curing the increasing loss of control over his bladder and rectum. His appearance proclaimed a grave malady. His paraplegia had reached the point where he could hardly walk; in fact, for a year he had only been able to walk with his bicycle beside him for support. I was almost certain of what I would find before I had him strip—and there was the characteristic deformity in the mid-dorsal region. Two months in bed, and a plaster jacket, worn since for four months, have nearly restored his limbs to their normal condition.

But certainly with regard to these advanced cases we only need have our attention directed to the possibility of such errors to sufficiently profit thereby. The recognition of the disease before this unfortunate deformity occurs gives us most concern, and is *the* matter of vital importance.

As an illustration of the disease at this earlier stage, I bring this boy before you. He is 9 years old. When I first saw him it was stated he had been ill but ten days or two weeks. From his appearance one knew at once he was seriously sick. His sole complaint, however, was of pain in the stomach. He had always seemed perfectly well except for the apparently insignificant fact

that for as much as two years he had at times complained of this pain. But, as far as his mother's observations go, his illness dates back not more than two weeks.

On examining the back, there was no deformity or local tenderness. Partially supporting the weight of his body with my hands under his arms, he volunteered the information that his stomach pain was relieved. In picking up an object from the floor, his movements would hardly attract attention—there was no effort to support his weight with his hands on his knees, the rigidity of the back muscles simply prevented any arching of the spine. He hesitatingly jumped from a chair to the floor, but said it caused him no pain. Placing him face down on the examining table, one could raise the thighs and pelvis and produce almost as extreme a flexion as normally, but when this was carried beyond a certain point he complained of exaggerated pain in the stomach. There was no psoas spasm. Lateral pressure on the ribs did not cause pain. He walked with his toes slightly turned in, and carried his shoulders thrown back and elevated. His abdomen was somewhat prominent. Had a doubt existed as to the diagnosis, it would have been removed by the radiographic appearances, to be referred to later. The diagnosis has been confirmed by the further progress of the disease—though there is no deformity present, and I anticipate the disease will run its entire course without the appearance of any; a careful palpation in the mid-dorsal region now reveals a very slight prominence of three spinous processes, and a little greater interval between them than is noted just above and below. The results obtained by the plaster jacket applied are also amply confirmatory, for without any other therapeutic measure being adopted, the patient was immediately relieved of his pain, and has entirely regained a healthy appearance, after an interval of two months. For two weeks, while his present removable jacket was being made, he wore one which had been slit up the side and insecurely fastened, with the result that there was a return of the pain.

This history of abdominal pain is characteristic. We find it referred to even in the original paper of Pott in 1799. He says: "And soon the patient complains of frequent pains and twitchings in his thighs, and of an uneasy sensation at the pit of his stomach." About fifty years ago, Benj. Lee (*Angular Curvature of the Spine*, Philadelphia, 1867), especially emphasized epigas-

tric pain as an important, early and characteristic symptom of spinal caries. "This pain," he writes, "is almost invariably the first symptom of the commencing caries, or of the inflammation of the periosteum or intervetebral cartilage which precedes the caries. In nine cases out of ten the disease is ushered in by attacks of gastralgia. The length of time during which the patient suffers from it before the ulcerative process has destroyed enough of the bone to produce active and unmistakable deformity is variable; but it has been noticed not infrequently six months, and in some cases an entire year previous." In this boy there had been attacks of epigastric pain for two years, but they had received no attention until his appearance suggested there was something seriously wrong with him.

Pain at the site of the disease, however, is not significant or constant, but is referred, on the contrary, to the area of distribution of the spinal nerves taking their origin in the affected region, producing these characteristic gastralgias when the disease is located in the mid-dorsal vertebrae; the pain being referred to the rectum, bladder and lower limbs when the lumbar vertebrae are involved, and to the arms, chest and occiput for the cervical vertebrae. Pain in the back, then, is a symptom frequently inquired for but usually absent. But any peripheral pain which does not yield to ordinary measures should cause the spine to be carefully examined.

In some cases all pain is entirely absent, and the general impairment of health—which the physician is at a loss to explain—may be the only evidence of the slumbering inflammatory process. In rare instances, without either pain or marked impairment of the general health, the disease may progress to the stage of deformity without attracting attention. Even in the early literature of the disease we find mention made of this. Sir Benj. Brodie ("Diseases of the Joints," London, 1818,) described "A case in which the patient had made no previous complaint, immediately after a slight exertion experienced a sudden pain, as if something had given way in the back, and at once lost the use of her lower limbs, and observed that the spinal process of one of the lumbar vertebrae made an angular projection." Large abscesses formed and she soon died.

Local tenderness on percussion and sensitiveness to heat or cold are signs to which diagnostic importance has been attributed since the earliest descriptions of the disease. Jas. Earle, a con-

temporary of Pott, said ("Observations on the Cure of Curved Spine," London) in 1799: "If suspicions are directed toward the back, the seat of the mischief may often be discovered by pressure with the fingers, or with the knuckles, gently on each vertebra, singly one after the other." Local sensitiveness to heat was first mentioned by Copeland in 1815 ("Treatment of the Diseased Spine"). He discovered it accidentally, he writes, in applying a moistened sponge to the spine, and cites a case in which, by the aid of this symptom, he recognized the disease before the occurrence of deformity. But the rapid cure obtained by his application of "Caustic issues" causes one serious doubt as to the accuracy of his diagnosis of spinal caries. Even in our twentieth century text books, especially those from German authors (Hoffa, Mueller, David), we find these signs enumerated, though I express my own skepticism as to their value. A modern modification to which they also refer is that suggested by Rosenthal and Seeligmueller—the sensitive spot being sought by the aid of the galvanic current, with the cathode on the epigastrium and anode applied along the spine.

James and Ridlon, in a series of contributions to orthopaedic surgery (Provincial M. J., Nov., 1892) thus express themselves on this point: "There seems to be an almost universal belief among the profession, and this belief has been fostered by nearly all teachers and writers on general surgery, that the most early and constant—in fact, the diagnostic—symptom of spondylitis is tenderness on pressure over the point of disease. There is no lack of knowledge as to the pathological anatomy; it is perfectly well known that the lesion is confined to the vertebral bodies and usually to their anterior portions. It is therefore quite impossible that there should be tenderness over the spine or transverse processes. Unless, then, there be disease of the processes or laminae, an exceedingly rare condition; or unless an abscess, which will not be readily detected by palpation, be present, tenderness on pressure will not be found in spondylitis. In a doubtful case its presence must count as an important symptom against true spondylitis."

In the early diagnosis of this disease the symptom of greatest value, the first to appear and the last to disappear, is muscular spasm. The same condition exists around chronically diseased joints of the extremities. This muscular rigidity is nature's

method of limiting motion, relieving pain and insuring rest. Rest is nature's panacea; with the fluoroscope look through a chest at the lung acutely involved in a tubercular process, and you see evidence of the same effort at repair through rest—the diaphragm on the affected side is almost fixed, its respiratory excursions practically *nil*.

This muscular spasm shows itself in different ways, according to the region of the spine involved. In cervical caries it often produces "wry-neck." If suspicion is fortunately directed to the spine, one is confirmed therein by the relief obtained from extension applied to the head with the patient in bed. If one does not keep spinal caries in mind unsuccessful tenotomies are sometimes performed. In young children, in the absence of wry-neck to attract attention, to demonstrate muscular rigidity, if cervical disease is suspected, place the little patient across your knees, "and," to again quote Jones and Ridlon, "if the disease exists the child will not let the head dangle, no matter how prolonged the examination may be."

In the lumbar region the mild lordosis seen in early cases is in part the result of muscular contraction, *i. e.*, psoas contraction—throwing the spine forward and necessitating the shoulders being thrown back—though in part voluntary, the patient naturally favoring this position, as it takes pressure off the diseased vertebrae. This lordosis produces a prominent abdomen, which may be one of the first things noticed. Contraction of the psoas muscle at times produces a slight limp, or a sliding gait. With the patient face down on the examining table and the pelvis fixed, this spasm of the psoas is shown by one's inability to raise the knee the normal two or three inches from the table. This contraction of the psoas, flexing the thigh and limiting its extension, often leads to a mistaken diagnosis of hip disease. It has been seen so great as to necessitate the child walking on "all fours." With the patient prone, any rigidity also of the spinal muscles, even of the upper dorsal region, can be readily appreciated by estimating the flexibility of the spine in raising the feet and pelvis from the table. In health this can be carried until the thighs are nearly at right angles to the back. Probably the best way to demonstrate any abnormality in the regular contour of the back, or limitation of its flexibility, is to have the patient stoop, or bend the body forward as far as possible while in a sitting position. The usual test

is to have the patient pick up some object from the floor ; the body will bend from the knees and hips, while the spine is held rigidly erect. In fact, the rigidity of the back muscles is shown in every movement made.

There is one other effect, at least in part due to spasm of the back muscles, and that is diminution in the patient's height, which may be considerable even in the absence of deformity.

Paralysis of both legs, less frequently the upper extremities, may be the first symptom noted, at times antedating the appearance of the deformity several months. This "palsy" of the lower limbs was the one symptom which first lead Pott to a study of the disease. He says : "When the disease attacks a child who is old enough to have walked properly, its awkward and imperfect manner of using its legs is the circumstance which first excites attention, and the incapacity of using them at all, which very soon follows, fixes the attention and alarms the friends. He at first complains of being very tired, is languid, restless and unable to move much, or at all briskly, for any great length of time. After this he may be observed to trip and stumble, although there is no impediment in his way ; and whenever he attempts to move, he finds that his legs involuntarily cross each other, by which he is frequently thrown down, and that without stumbling ; upon endeavoring to stand still and erect, without support, even for a few minutes, his knees give way and bend forward. When the disease is a little further advanced, it will be found that he cannot, without much difficulty and deliberation, direct either of his feet precisely to the exact spot, and very soon after this both thighs and legs lose a good deal of their natural sensibility, and become perfectly useless for all purposes of locomotion."

If this disease is very liable to be overlooked in adults, how much more is this likely in children, who cannot explain their ill feelings. Pott's statement that : "When the disease attacks an infant of only a year or two old, or under, the true cause is seldom discovered until sometime after the effect has taken place," is about as true to-day as it was then. Paralysis is shown in an infant only by the loose, flaccid manner in which the limbs lie, though the way it climbs to a sitting posture, by seizing the edge of the crib, might attract attention. The child lies quietly if undisturbed, but cries at the slightest touch or the approach of anyone.

In the examination of infants, Sayre was in the habit of taking the child across his knees, and in separating them note the effect of the slight traction thus made—pain and difficult breathing often disappearing in a significant manner. It was Sayre who pointed out that in the dorsal part of the spine the sides of the vertebrae are primarily and most extensively involved. Lateral pressure on the ribs so as to force their heads against the facets produced pain, which he regarded as a valuable diagnostic point.

Waterman and Jaeger (*N. Y. Med. Rec.*, Nov. 9, 1901), after a study of a thousand cases on the record books of the New York Hospital for the Ruptured and Crippled, state that the first symptom noticed in infants and children under five years of age was an unnatural attitude. Gastralgia, night cries and progressive weakness were the next most common early symptoms, while grunting respiration, inability to walk, and abdominal protrusion were present in but a very small number.

In disease of the upper dorsal vertebrae the chin is raised, "Suggesting the position of a seal's head when out of water." (Bradford and Lovett.) In caries of the mid-dorsal spine the shoulders are elevated and thrown back, thus relieving the bodies of the diseased vertebrae from pressure and aiding in the fixation of the spine. The patient walks with toes slightly turned in so as to prevent the heels from striking, and with more weight on the toes than on the heels, the better to prevent jarring of the back. In cervical caries a favorite attitude for the child is with its chin supported on its hands and elbows on a table or on its knees.

In this early case of Pott's disease I have brought before you the x-rays were a factor in confirming the diagnosis. The radiograph shows the space between the eighth and ninth dorsal vertebrae nearly obliterated. Superimposed on the cardiac shadow there is a fusiform shadow jutting out from the spinal column from the seventh to the tenth vertebrae, quite marked on the left side, but less distinct on the right. It outlines the inflammatory exudations at the site of the disease.

It is surprising how little has been written on this subject of the x-ray appearances in early Pott's disease. Everyone is agreed upon the difficulty attending the recognition of the disease before the appearance of the deformity, yet the references in medical literature to the value of the x-rays in this connection

can be counted on the fingers of one hand. In an article on the cure of spinal caries without subsequent deformity, by Royal Whitman, in the *Transactions of the American Orthopedic Association*, 1901 (page 359), is a cut showing the x-ray appearances in a case of early lumbar caries. Redard and Loran in 1898, at the twelfth French Surgical Congress (page 228), spoke most enthusiastically on this subject. In many of their observations an x-ray examination enabled them to establish the diagnosis of Pott's disease in its earliest stage, when the subjective and objective symptoms were not enough by themselves to justify it. Their plates showed the number of vertebrae involved, extent of lesions, loss of substance, existence of sequestra and tubercular cavities.

Kirmisson, another French orthopedic surgeon, writes the only other paper on the subject of which I have any knowledge (*Revue d'Orthopedie* 1901, p. 405). The x-ray appearances in the case presented this evening correspond exactly with those described by him. He writes: "It is especially in the dorsal region that radiography furnishes the most precious information. In the lumbar region, in docile children, deep palpation of the abdomen enables one to recognize, at times, without great difficulty, the existence of caseous masses in front of the vertebral column, at times even small abscesses still distant from the anterior abdominal wall. In the dorsal region it is not the same, and neither palpation nor careful percussion enables one to affirm the existence of an abscess. There is here, unfortunately, an anatomical fact which is inconvenient in the appreciation of the results furnished by the x-ray negative—the presence of the cardiac shadow. However, one readily learns to recognize the characteristic outline of this latter; and further, even when the cardiac and Pottic shadows are superimposed, one on the other, the shadow due to the vertebral lesion generally being the more pronounced. One is able to recognize the fusion of several vertebral bodies by the disappearance of the clear intervals corresponding to the intervetebral discs, and to see that the vertebral column is often surrounded by a more or less round or fusiform exudation which juts out from each side of the vertebral bodies. This latter fact is *en rapport* with that remarked by all observers occupied with the pathological anatomy of Pott's disease—that clinically a good number of patients have no abscess; while, on the contrary, when one has occasion to make anatomico-pathological studies one is struck to see that in

reality the majority of cases of Pott's disease are accompanied by suppuration."

I may add to the remarks of Kirmisson the well known fact that in early cervical caries it is often extremely difficult to differentiate the muscular spasm associated with this condition from that of true muscular wry-neck, and, as a last word, enter a plea for the more frequent use of the x-rays in one's efforts to recognize spinal caries at an early date.

Dr. Shands said he was glad he had heard Dr. Vale's very interesting paper. He himself had on two occasions read a paper on this subject before the Society. Dr. Vale's paper had been so thoroughly prepared that little was left to say in the way of discussion. Dr. Shands wished to emphasize two points: 1. The onset of the disease was usually insidious, and the importance of the symptoms frequently not recognized. The symptoms were at first intermittent. There was much awkwardness for a time, but this passed off, only to return at more and more frequent intervals, until eventually it was permanent. The child was fretful, did not care to play, and exhibited other symptoms more or less characteristic to the careful observer. 2. The night-cries were very important in making a diagnosis. They were due to the fact that the spasm of the muscles of the spine relaxed suddenly during sleep, and the child awoke with a scream of pain. This usually occurred several times during the early part of the night. This symptom also was intermittent in character.

The pain was never referred to the seat of the disease until after breaking down had occurred; before that it was referred to the peripheral distribution of the nerves that leave the cord in the diseased area. The gait was characteristic; the child walked on the ball of the foot, with flexion of the hip, knee and ankle, in order to save the spine. The patients should always wear rubber-heeled shoes in order to lessen the jar to the spinal column in walking. The lordosis of the lower spine was voluntary, its object being to relieve pressure on the vertebrae.

There was a set of cases of Pott's disease without deformity, which were very puzzling. All the symptoms were present, but no deformity, because the *anterior* portion of the bodies of the vertebrae only were diseased.

He had had little experience with x-rays in the early diagnosis of the affection; in fact, only one or two cases had been brought to him within the last twelve years before deformity had developed, so that he had had no call for this means of diagnosis. He could easily see, however, how the rays might be of value in this connection. When the diagnosis was made before deformity appeared a great point was gained; for then, with proper treatment, deformity could be prevented.

Dr. J. Ford Thompson said that the subject was important, and merited the fullest consideration. He was glad it had been brought up for discussion. He could make little of the negative exhibited by Dr. Vale. Most cases came into the surgeon's hands after deformity had appeared, and hence there was no need of an x-ray examination. While the patient exhibited had no deformity of the spine, yet Dr. Vale stated that there had been a loss of substance—a statement which was evidently not consistent with the facts. Deformity was not always present in Pott's disease. Dr. Thompson cited two cases in illustration. The first was a child, brought to the Children's Hospital. He introduced a probe into a sinus in the neck which was thought to lead from a suppurating gland; to his surprise, he struck bone. The case was one of cervical spondylitis, without deformity of any kind. He operated, extracting a piece of necrosed bone. The child recovered without deformity. The second case was that of a colored child, which was brought into the hospital two or three days ago; a diagnosis of empyema had been made, but he believed the case to be one of spinal disease. He operated, and, after evacuating a large abscess, found disease of the twelfth dorsal vertebra, the bone being denuded anteriorly; yet there was no deformity whatever.

He had a number of times been called on to operate for supposed hip disease, which turned out to be disease of the spine. Ordinarily, however, if attention was called to the case, early diagnosis was easily made and the x-rays were not essential. True, there might be a central disease of the vertebrae, in which case diagnosis was made with difficulty. To secure the best results, the patients should be treated before deformity took place. Even then, however, one could not be sure of preventing the deformity in every instance.

One should use fixation in the early stages, preferably Sayre's apparatus; later other methods of fixation were better—a Phelps' box, with wire supporters, for instance. It should be an invariable rule, however, to let out pus whenever it was located, the sooner the better; the rule was the same as that which applied to the treatment of collections of pus elsewhere in the body. Caries also should be treated as elsewhere. In some cases, especially where there was paralysis, it may be proper to do a laminectomy in the dorsal region; it relieved the pressure and afforded an opportunity for curettement, etc. He advocated forcible straightening of the spine in suitable cases, when complete ankylosis had not yet occurred. Too great force should not be applied, however—only that which could be exerted by the thumbs of the surgeon.

Dr. Vale, in closing, explained further the x-ray negative which he had exhibited in connection with the case he had reported.

ON THE VALUE OF A KNOWLEDGE OF ABNORMAL MOBILITY OF THE IRIS AS AN AID IN DIAGNOSING DISEASES OF THE NERVOUS SYSTEM.*

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Swanzy, a distinguished oculist and brilliant writer, says that the condition of the pupils, whether dilated or contracted or normal, is of very slight significance or value in the diagnosis either of the kind or the position of any intracranial lesion. And he goes on to say that, slight in value as is the state of the pupils in cerebral cases, there is probably no symptom which receives more attention from the clinician in his note taking.

It has seemed to me that the oculist and the general practitioner alike could only draw the most misleading inferences from such an avowal. In consequence I have taken great pains and labor to review a very extensive field of literature both in Ophthalmology and in Nervous and Mental Diseases, in order to confirm or modify my very different conception of the value of a knowledge of abnormal pupillary actions.

In order to appreciate the significance of abnormal mobility of the iris in diseases of the nervous system it is essential that we should thoroughly understand the anatomical basis for normal pupillary activity and the appearance of the normal pupil. We should also have a knowledge of the variations of the pupil that are independent of diseases of the brain and spinal cord.

According to Woinow, the diameter of the pupil varies, even when the accommodation is at rest, from 2.44 to 5.82 mm., the average diameter being about 4.14 mm. The size of the normal pupil, though determined mostly by the amount of illumination to which it is exposed, varies widely as to its condition of contraction and dilatation according to the resultant of the many stimuli which react upon it directly or indirectly. In recording the size of the pupil or variations in its diameter, pupillometers should be employed. Randall's modification of Follin's instrument is one of the best practical pupillometers, and consists of a scale of circles. It is held close to the eye under observation and rotated until that circle is found which most nearly matches

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the pupil in size, and the diameter in millimeters is then noted. This method of exactly ascertaining the diameter of the pupil under observation is much more useful than such loose statements as "medium-sized pupil" or "pupils dilated," etc. The size of the pupil is larger in dark eyes than in blue ones; in myopia it is greater than in emmetropia, and is more sluggish in response to the various stimuli. There is an associated condition of atrophy of the ciliary muscle. In hypermetropia the pupil is smaller than in emmetropia and acts more energetically to stimulation and there is an accompanying hypertrophy of the muscle of accommodation. Between the twentieth and fortieth years the variations in the size of the normal pupil in the different types of refraction become less pronounced, while after the fortieth year the differences are scarcely appreciable. With advancing years the pupil normally becomes small in size. The small pupil of elderly persons is due not only to sclerosis of the walls of the vessels and rigidity of the stroma of the iris, but also to a diminution of the activity of the sympathetic nerve. In the vast majority of cases in normal eyes the pupils are equal, not only when both eyes are exposed to light or shaded, but also when one eye is shaded.

Where there is inequality of the pupils (anisocoria) the more sluggish or immobile pupil is the pathological one. Unequal pupils occur where one eye is blind, or where the character of the refraction in the two eyes is very different, in traumatism, dental caries, in parietic dementia, locomotor ataxia, insular sclerosis, migraine, and in focal disease of the brain.

Bilateral dilatation of the pupils may occur in cases where there is a deficient blood-supply to the brain centers or where there is diminution of blood in the vessels of the iris as in anaemia, syncope, nausea, shock, aortic regurgitation, trance, melancholia, the coma following an epileptic convulsion, and in depressed nervous tone. It occurs in fevers with active delirium; also in typhoid fever. There is a slight dilatation of the pupils at every ordinary inspiration depending on variations of the blood pressure.

Bilateral contraction of the pupil occurs in conditions producing congestion of the iris as in typhus fever, mitral insufficiency and other diseases leading to venous congestion, and in pulmonary congestion. At every pulse beat there is a tendency to myosis through

systolic filling of the arteries; it also occurs in diminished intra-ocular pressure (*e. g.*, paracentesis corneae).

During forced expiration two factors are at play in affecting the pupil: if the greater factor is the retention of carbon dioxide, the pupil will be dilated by stimulation of the pupil-dilating center; if congestion of the head, and, therefore, of the iris predominates, there will be contraction of the pupil.

The anatomy at the bottom of a simple involuntary response of the pupil to the direct and indirect light stimulus is as follows: first occur the rods and cones of the neuro-epithelium of the retina, then the bi-polar cells, and then the neurones whose cell bodies constitute the ganglionic layer of the retina. These cell bodies send out axons which collectively constitute the bulk of the optic nerve; thence in sequence they form the optic chiasma and take part in the formation of both optic tracts. From each tract the pupillary fibers, as distinguished from the visual fibers, proceed through the superior brachium to the superior quadrigeminal body or colliculus of the corresponding side and terminate in arborizations around other cell-bodies located in these structures. The pathway extending from the retina to the superior colliculus on either side constitutes the afferent or centripetal one.

The cell-bodies located in either colliculus send out axons which descend and arborize around the cell-bodies of the oculo-motor nucleus in the floor of the Sylvian aqueduct on the corresponding side of the median line. These neurones extending between the superior colliculus of one side and the oculo-motor nucleus of the same side constitute the association pathway, or Meynert's fibers.

The oculo-motor nucleus is highly specialized and differentiated into several nests of cells or sub-nuclei, such as those for accommodation, for pupil contraction and for convergence. The axons of the cell-bodies situated in these sub-nuclei pass along the third nerve and constitute the efferent or centrifugal portion of the reflex arc.

It is through the pupillary fibers of the optic nerve on each side decussating partially and going through both optic tracts that each retina is brought into relation with both oculo-motor nuclei so that the light impinging on one retina can stimulate both pupil-contracting centers and cause both pupils to contract. If the light stimulus is applied to one retina, say the right, and the right

pupil contracts, we obtain the *direct* light reflex ; the left pupil contracting under the same circumstances constitutes normally the *indirect* or *consensual* light reflex.

Another important mechanism by which the consensual light reflex is possible is due to the connection of the two pupil-contracting centers by commissural fibers.

Those efferent fibers destined to control the convergence of the visual axes in binocular vision go directly to the internal rectus muscles. Those that are to control the contraction of the pupil through the *sphincter iridis* and the accommodation of the eyes for points at varying distances through the ciliary muscles, pass to the ciliary ganglion and arborize around the cell-bodies there located. The axons of these cell-bodies thence pass by way of the short ciliary nerves to the *sphincter iridis* and ciliary muscles.

The centrifugal pathway for reflex dilatation of the pupil starts at the pupil-dilating center in the fore part of the floor of the Sylvian passage and is probably situated a little external to the oculo-motor center. The cell-bodies of this center send out axons that pass downward toward the cilio-spinal center situated in the lower cervical and upper dorsal part of the spinal cord. It is probable that a series of related neurones intervenes between the pupil-dilating center in the *crus cerebri* and the pupil-dilating center in the cord called the cilio-spinal center, the last of the series arborizing around the cell-bodies in the cilio-spinal center. From this latter center the cell-bodies send out axons that traverse the anterior roots of the first and second thoracic nerves and their *rami communicantes*, thus reaching the first thoracic ganglion and traveling thence along the cervical sympathetic to the superior cervical ganglion, where they arborize around the cell-bodies contained therein. These cell-bodies send out axons that traverse the cavernous plexus and the ganglion of Gasser (without arborizing in the latter) to reach the ophthalmic division of the fifth nerve and its nasal branch ; thence they proceed by way of the long ciliary nerves to the *dilator pupillae* muscle. This complicated but well defined route constitutes the centrifugal pathway for pupil-dilating stimuli.

One of the many centripetal pathways concerned in producing reflex dilatation of the pupil can be illustrated by studying the skin-reflex. If the skin of the neck be pinched or, better, stimulated with a faradic brush, the sensory impulse travels from the

nerves of the skin through the posterior roots of the cervical spinal nerves directly, and indirectly by relays of neurones, to the cilio-spinal center. The axons of this centripetal pathway that reach the the cilio-spinal center arborize around the cell-bodies contained therein and start impulses that traverse the centrifugal path, already described, to the *dilator pupillae* muscle. Another centripetal pathway is from the cerebral cortex through the *corona radiata*, internal capsule and *crus cerebri* to the pupil-dilating center in the floor of the Sylvian passage and thence to the cilio-spinal center. This latter is the route taken by the psychic impulses that dilate the pupil, as fear, anger, etc.

The centripetal pathways for dilatation of the pupil are as innumerable as are the pathways for all sensations except those of illumination. In health the reflex contraction of the pupil is invariably accomplished by the light stimulus or the convergence stimulus reacting upon the pupil-contracting center. Every other sensory and psychic stimulus reacts to a greater or less degree upon the pupil-dilating center tending to stimulate the *dilator pupillae* muscle.

The normal medium dilatation of the pupil is dependent mainly upon the presence of stimuli of medium intensity. In a person who is asleep or under complete anesthesia, and in whom therefore the psychic and all other stimuli are at their lowest intensity, the pupils are contracted.

Women, since they are of a more sensitive organization, have larger pupils than men. Nervous, sensitive persons have larger pupils than dull, phlegmatic persons of the same sex.

The reflex contracting and dilating movements of the pupil are altogether involuntary. If both the contracting and dilating mechanisms are stimulated simultaneously the pupil contracts.

But there are movements of the pupil which, though not immediately caused by efferent or afferent stimuli, are indirectly produced through correlation with the voluntary conjugate movements of the eyes from parallelism to convergence, or the reverse, in binocular vision. The centrifugal pathway for voluntary convergence of the visual axes in the horizontal plane starts from the cortical center for convergence, which corresponds with the macular center for convergence, in the middle of the calcarine fissure of the occipital lobe. The cell-bodies located in this region send out axons that traverse the optic radiations to reach

the retro-lenticular part of the internal capsule and thence proceed through the *crus cerebri* to the nucleus of the oculo-motor nerve, arborizing around the cell-bodies of the convergence-nucleus contained therein. There is such an intimate relation, through association fibers, between the single, medianly situated, convergence-nucleus in the floor of the Sylvian passage and the accommodation and pupil-contracting centers on each side, that a stimulation of the convergence-center effects simultaneously a stimulation of the ciliary and *sphincter iridis* muscles on both sides. Hence convergence of the visual axes causes normally a contraction of both pupils and constitutes what is known as the convergence-stimulus of the pupils; a return of the visual axes to parallelism produces dilatation of the pupil. While there is only one centrifugal pathway along which an impulse travels from the cortical center for convergence to the corresponding center in the mesencephalon, there are many pathways for afferent or centripetal impulses to reach the cortical center for convergence. If we take into consideration all the sense-perceptions, all the associations of ideas, all the activities of memory, and imagination, and the emotions, the resultant of which psychic processes constitutes the basis for volition, we may say that the afferent or centripetal pathways for influencing the voluntary movements of convergence and the correlated movements of contraction of the pupil are innumerable and vary immensely in their directness or indirectness and therefore in their complexity. But the principles underlying all these activities are few in number and easily comprehended. For instance, the light stimulus, falling on an eccentric portion of the retina (a portion other than the *macula lutea*) passes along the optic nerve, chiasma, and optic tracts to the lateral geniculate bodies. Here the axons of the visual cell-bodies located in the ganglionic layer of the retina arborize around other cells-bodies located in these lateral geniculate bodies. Axons go out from these cell-bodies along the optic radiation and arborize around cell-bodies located in the corresponding eccentric portion of the cuneus. These last axons constitute the last relay of neurones in the afferent pathway by which the light stimulus is transmitted to the cortical (macular) convergence center, and causes the eyes to converge to the luminous point, through volition (and also frequently involuntarily). Of course, involuntary reflex convergence, and the accompanying myosis, can be induced

by stimulation of the convergence center by other afferent pathways.

Another complex afferent pathway is that by which a sound causes voluntary or involuntary movements of the head (and body at times) and convergence of the eyes toward the source or direction of the sound.

In *disease* the dilatation or the contraction of the pupil can be either irritative or paralytic, or both combined. *Paralytic mydriasis* is produced by an inhibiting disease either of the pupil-contracting center or of the fibers that pass along the third nerve to the *sphincter iridis*; it may also be due to disease of the centripetal pathway between the retina and the oculo-motor nucleus. The pupil is moderately dilated, reacting only slightly to myotics, but dilating greatly under mydriatics. If the lesion be located between the pupil-contracting center and the *sphincter iridis* there can be neither direct nor consensual light reflex. Should the disease lie in the centripetal path between the retina and the pupil-contracting center, the pupil can react to convergence and to the consensual light reflex, but not to the direct light stimulus. *Spastic mydriasis* is caused by an irritation of either the pupil-dilating center or the pupil-dilating fibers going to the *dilator pupillae* muscle. In this form of mydriasis there is moderate dilatation of the pupil, and it does not dilate further in response to sensory stimuli. Myotics affect the pupil but slightly while mydriatics dilate it to the maximum. The pupil contracts only moderately to the convergence and light stimuli.

While either form of mydriasis occurring separately evokes only moderate dilatation, the two occurring in conjunction would develop a maximum dilatation. *Paralytic myosis* is due to an inhibiting lesion of the pupil-dilating center in the mesencephalon or of the pupil-dilating fibers. In this myosis the contraction is moderate and the pupil is little affected by mydriatics, while myotics have a maximum effect. *Spastic myosis* is caused by an irritation of the pupil-contracting center or of the pupil-contracting fibers. The pupil is moderately contracted and reacts very slightly to reflex stimuli; but it is very responsive to myotics and mydriatics, these drugs effecting contraction and dilatation *ad maximum*. While in either paralytic or spastic myosis occurring separately the contraction is moderate, the two in conjunction would develop a contraction *ad maximum*. A disease of the pupil-dilating center

or its centrifugal fibers will induce either spastic mydriasis or paralytic myosis according to whether the lesion is in its early or stimulating stage or whether it has advanced to its late and inhibiting phase. For instance, the early stages of diseases of the spinal cord in the cervical region will develop spastic mydriasis, as spinal hyperaemia, meningitis, myelitis and neoplasms: this spastic mydriasis is also caused by the pressure of enlarged lymphatic glands on the cervical portion of the sympathetic nerve, also by an aneurism of the arch of the aorta, or of the brachio-cephalic or common carotid arteries. The later, inhibiting stages of all these lesions would induce paralytic myosis. Traumatism of the cervical portion of the cord or sympathetic nerve would cause paralytic myosis. The toxine of locomotor ataxia frequently develops an early spastic mydriasis and a later paralytic (so-called spinal) myosis. This type of myosis is also an important symptom in the paralytic pseudo-dementia of syphilitic origin and in paralytic dementia. It occurs also in insular sclerosis, in some forms of multiple neuritis, and in bulbar palsy when complicated with progressive muscular atrophy. The amblyopia of chronic alcoholism is frequently accompanied by paralytic myosis due to fatty degeneration in the *medulla oblongata*.

The value of a knowledge of pupillary abnormalities is well shown in the case of paralytic myosis. The small pupil in this condition is usually associated with retraction of the ball of the eye into the orbit and narrowing of the palpebral fissure and is most frequently observed in aneurism of the thoracic aorta or other mediastinal tumor, in chronic inflammations of the cervical portion of the cord and in locomotor ataxia. In these cases a general inspection of the body will often enable the physician to instantly make a diagnosis. If the lesion be an aneurism some pulsation of the upper part of the chest would be observed; in diseases of the cervical cord muscular atrophy of the upper limbs would be noticed and the position of the hands and the spastic attitude of the feet would be conspicuous, while in locomotor ataxia all the signs mentioned above would be lacking and both pupils would be small and inactive to light.

Spastic mydriasis also occurs in irritation of the sensory nerves of the intestines by worms or intestinal tumors; in the spinal irritation of persons suffering with anaemia after severe illness; in acute mania and melancholia; in paralytic dementia when it is

often associated with paralytic myosis in the other eye, and in hunger. While mydriasis in spinal diseases indicates an irritative process, in cerebral lesions it points to an extensive inhibiting disease of the brain. Diseases of the pupil-contracting center, or its efferent fibers in the third cranial nerve, will cause either spastic myosis or paralytic mydriasis, according to the irritating or depressing nature of the lesion.

Spastic or irritative myosis is symptomatic of early stages of inflammatory diseases of the brain and its meninges; it is present in the early stages of epileptic and hysterical attacks; in the early stages of intracranial tumors involving the third nerve. If, during the course of tubercular, simple or cerebro-spinal meningitis, or other inflammatory affections of the brain, mydriasis replaces the medium myosis the prognosis becomes graver. It points to paralysis of the third nerve and indicates the stage of depression. Spastic myosis occurs in engravers and watchmakers, in consequence of the protracted stimulation of the convergence and accommodation centers; also in those having tobacco amblyopia, due to the excessive stimulation of the myotic center by the nicotine. In apoplexy due to haemorrhage there is at first spastic myosis (or the pupils may be unequal) and the light reflex is lost, whereas in thrombosis and embolism the pupils are not myotic and they react to light and are equal. When spastic myosis occurs in abscess of the brain, the myosis is at first on the same side as the lesion. Spastic myosis occurs when the cerebellum is invaded by small haemorrhages; also as a reflex action in many diseases of the eye involving irritation of the tri-facial nerve, and in pressure on the pons. The lesion of the pons in which bilateral myosis is most frequently observed is haemorrhage into this structure. When a patient is in profound coma and has great contraction of the pupils—opium poisoning being excluded—a haemorrhage into the *pons Varolii* should always be suspected. Occasionally the double myosis is noted in meningeal haemorrhages that occur through the *corpus striatum* into the lateral ventricle. Frequently in pontine apoplexy, the pupils, instead of being contracted, are normal. The collateral or accompanying symptoms are required to locate and define the nature of the lesion.

Paralytic mydriasis is caused by diseases of the orbit and intra-ocular growths that produce pressure upon the ciliary nerves. In

glaucoma, for the same reason (although cloudiness of the media and diminution of illumination also encourage the mydriasis), in lesions of the brain causing increased intracranial pressure, such as haemorrhage, tumors and large abscesses; in haemorrhage into the *crus cerebri* or the *centrum ovale*; in cerebral softening, and in acute dementia with oedema of the cortex. In the late stages of paralytic dementia irritative myosis gives place to paralytic mydriasis. When first one eye and then the other is affected by transient mydriasis the symptom is to be regarded as a prodrome of insanity. Optic atrophy, by preventing the conduction of the light stimulus, induces paralytic mydriasis, but does not prevent reflex contraction of the pupil in response to the convergence stimulus.

Another anomaly of the pupil is hippus. *Hippus* may be defined as a normal clonic rhythmical spasm of the *sphincter iridis*. With a given fixation and illumination there is a rhythmical dilatation and contraction of the pupil. Even when the pupil seems perfectly quiet its inspection with the corneal microscope will reveal that there are minute and irregular variations in its size that are perpetually taking place in response to the ever changing psychic and sensory impulses that are playing upon the pupil-dilating center. This minute hippus has aptly been designated the "Unrest of the Pupil." Hippus, when pathological, is usually associated with nystagmus. The latter symptom is a clonic rhythmical spasm of the muscles concerned in producing conjugate lateral and other movements of the eyes. Both abnormal hippus and nystagmus are very important symptoms in the diagnosis of insular sclerosis. Abnormal or exaggerated hippus occurs in mania and other psychical disturbances, in hysteria, epilepsy and meningitis. It is not only comparatively frequent in insular sclerosis, but it also, in two recorded cases, was the only brain symptom noted. As nuclear palsy of the convergence center in the floor of the Sylvian passage is relatively frequent in this sclerosis, the pupillary symptoms pertaining to that palsy are frequently noted. In neurasthenia and in cases of secondary spasms and tremor following attacks of apoplexy there is a very noticeable increase in the oscillations of the pupils. Through irritation of the first thoracic ganglion by tuberculous glands a transient, rapid and unsymmetrical dilatation of the pupils may be observed in a considerable number of cases of tuberculosis. Buzzard taught that of all the organic diseases of the nervous system insular sclerosis

in its early stages is most commonly mistaken for hysteria. Since a series of rapid contractions and dilatations of the pupils occurs in both these diseases on sudden exposure to light, the associated symptoms of the hippus are necessary to differentiate the diseases, particularly the associated eye-symptom known as nystagmus that occurs in the sclerosis.

When a pupil reacts slowly to light, it indicates that chronic degenerative changes are taking place in the nervous system. *Basal lesions* of the third nerve are common factors in producing pupillary disturbances, usually paralytic mydriasis. The most common cause is the gummatous exudate of syphilis. In basal lesions there is very generally an involvement of several nerves without reference to symmetry and this fact constitutes the chief diagnostic feature of these lesions. A crossed paralysis of the third nerve due to basal lesions cannot be distinguished from that induced by pontile disease. Usually in the former the symptoms appear gradually and in sequence; in the latter simultaneously and suddenly.

Swanzy believes that an indolent and chronic form of meningitis due to rheumatism, even when no other signs of rheumatism are present, is often a cause of basal paralysis of the third nerve. There may be immobility of the pupil, coming and going from day to day. In the investigation of basal lesions it is well to remember that tumors of the frontal lobe of the cerebrum tend to grow toward the base of the brain and there directly involve the cranial nerves. Also basal paralysis occurs as a distant or pressure symptom of tumors of the cerebellum and cerebral hemispheres.

A neoplasm occupying the cavernous sinus, a rupture of the cavernous artery in the cavernous sinus, an aneurism of the cavernous artery or of the intracranial portion of the ophthalmic artery, and thrombosis of the cavernous sinus, may all involve the third nerve either by direct pressure or indirectly by pressure of the distended ophthalmic vein. Hence in these affections pupillary symptoms may be prominent. According to the amount of irritation or depression of the third nerve, there would be irritative myosis or paralytic mydriasis.

Fascicular or crossed paralysis of the third nerve is another important condition causing abnormal pupillary phenomena. Since the superior peduncle of the cerebellum, like the third nerve, is

intimately related to the red nucleus in the tegmentum, vertigo is a common symptom in fascicular paralysis of the third nerve.

Nuclear disease of the oculo-motor nerve is a common cause of symmetrical mydriasis, and may be developed by many causes. It may complicate bulbar paralysis, progressive muscular atrophy, paralytic dementia, insular sclerosis, locomotor ataxia, multiple neuritis, exophthalmic goitre, and occur as a sequel of diphtheria, grippe, diabetes and purpura; it follows injuries to the head, unaccompanied as well as accompanied by fracture. The most common causes of primary cases of this disease are alcoholism and syphilis. Other causes are poisoning by carbonic oxide, nicotine, ptomaines, sulphuric acid, or lead, and exposure to cold; also congenital predisposition where it occurs in young children. According to Swanzy chronic alcoholism is the factor in developing what he calls sudden or peracute nuclear ocular palsy. Paralysis of the power of convergence due to nuclear disease of the convergence center in the floor of the Sylvian aqueduct gives well-defined pupillary symptoms. In this affection the power to fix both visual axes upon the same point is lost while the eyes separately or together can move to either side. In other words the nucleus of the sixth nerve on either side can be stimulated and evoke conjugate lateral motions, and each internal rectus can respond to a stimulus from its own special nucleus. In this focal disease of the brain the light reflex is intact, and the pupil is not dilated, but the reflex contraction of the pupil does not occur on attempting to converge the eyes—the convergence stimulus is abolished. A greater or less impairment of accommodation is a concomitant of these conditions. This nuclear paralysis must be carefully distinguished from the impairment of convergence that is common in exophthalmic goitre and which is due to mechanical causes, and also from insufficiency of the internal recti that may be associated with myopia. Berry records a case of spasm of convergence due to hysteria. Although he does not mention it, I presume the condition was accompanied by irritative myosis.

Thrombosis of one cavernous sinus may extend through the circular sinus to the opposite cavernous sinus, causing at first total immobility of one eyeball and then the other. This condition would be differentiated from nuclear ophthalmoplegia by the presence of oedema of the lids and chemosis, optic neuritis, exophthalmos, pain and finally loss of sensation. In addition to

these local symptoms there would be chills, fever, etc. The symptoms diagnostic of nuclear palsy of the ocular muscles are their bilateral and often symmetrical occurrence, and also the fact that commonly either the intrinsic or the extrinsic muscles alone are paralyzed, also the frequent immunity of the *levator palpebrae*.

Tumors of the pineal gland and other tumors in the region of the quadrigeminal bodies by compressing the nuclei in the floor of the aqueduct of Sylvius furnish an important localizing distant symptom because impairment of the muscles of the eye very similar to those of nuclear ocular palsy (ophthalmoplegia) will be present. This ocular palsy is commonly associated with cerebral ataxy. A tumor of the median region of the cerebellum, as the vermis, has engendered the same group of symptoms. Pupillary disturbance is a frequent concomitant of the other eye symptoms.

Wernicke's pupil-symptom.—A lesion of the visual path between the optic chiasma and the cortical center for vision will cause the symptom known as homonymous hemianopsia. The presence of Wernicke's pupil-symptom is diagnostic in enabling us to locate the lesion in the optic tract. Wernicke's pupil-symptom is difficult to evoke. It should be made in a dark room with the aid of an assistant. The source of illumination can be a gas jet of mod-

Meynert's fibers; C, oculo-motor nucleus (pupil-contracting center); 8, oculo-motor nerve; 9, its ciliary branch; D, ciliary ganglion; 10, short ciliary nerve supplying the sphincter iridis (1).

3, 4, 5, 6, 7, A, B, centripetal pathway of the myotic mechanism; C, 8, 9, D, 10, centrifugal pathway of the myotic mechanism.

H, encephalic pupil-dilating center; I, spinal pupil-dilating center (cilio-spinal center); 12, pathway between encephalic and spinal pupil-dilating centers; pathway of pupil-dilating fibers through the anterior root of the first thoracic spinal nerve (13), the ramus communicans (14), the first thoracic sympathetic ganglion (K), the cervical sympathetic nerve through the inferior cervical ganglion (L), the middle cervical ganglion (M), and the superior cervical ganglion (N), and then along the carotid plexus (16) to the ganglion of Gasser (O) and the ophthalmic branch of the fifth nerve (17), thence along the nasal and long ciliary nerves (18) to the dilator pupillae muscle (2).

H, 12, L, 13, 14, 15, 16, O, 17, 18, centrifugal pathway of the mydriatic mechanism.

19, 20, 21, 22, sensory nerves from the viscera, integument, muscles, joints, etc., and constituting spinal centripetal pathways of the mydriatic mechanism.

11, encephalic centripetal pathway of the mydriatic mechanism leading from cortex to the encephalic pupil-dilating center (H).

erate brightness, and should be situated behind the patient and the latter directed to look into the distance. The pupil should then be moderately illuminated by the assistant reflecting light into it with a plane ophthalmoscopic mirror while the examiner directs from the concave mirror of his ophthalmoscope a narrow beam of light upon different portions of the retina. If the light is reflected upon the hemiopic portion of the retina to the exclusion of the remaining portion, either there will be no light-reflex of the pupil or, which is more usual, the pupillary response will be much more sluggish, than when the light is reflected upon the normal half of the retina. The lack of promptness of the pupillary reaction, rather than its entire absence, in the test for hemiopia, is due to the fact that it is impossible to prevent some of the light from reaching the normal side of the retina. The pupillary movements may be quite delicate in this test, and therefore the pupil should be very carefully observed. A simpler and much more accurate test, and one that can be applied without the aid of an assistant, is to use the instrument devised by Von Fragstein and Kempner instead of the concave mirror, for sending a very small beam of light upon various parts of the retina. Great care should be exercised in throwing the beam of light into the eye to be sure that its angle of incidence as well as its intensity shall be as nearly as possible the same on each side of the retina. This is important because a variation in the angle of incidence of the beam of light sent through the pupil of a perfectly normal eye on one side and then on the other will cause a decided difference in the rapidity and promptness of the pupil-reflex. It should be borne in mind that occasionally in the same patient Wernicke's pupil-symptom may be present at one observation and then on a subsequent day be absent. This is to be explained by the presumption that the pupillary nerves in the optic tract are damaged but not destroyed, so that they may be more responsive to stimuli on some days than on others. Again, in lesions of the optic tract hemianopsia may be present while Wernicke's pupil-symptom is altogether absent, owing probably to the greater vulnerability of the visual than the pupillary nerves.

Wernicke reports a case of brachial monoplegia, associated with homonymous hemianopsia, which resulted from a stab in the head. The detection of his pupil-symptom (the hemianopic pupillary inactivity) led him to make the correct diagnosis of injury of the optic tract and of the closely related *crus cerebri*.

Henschen reported observations on a patient who presented fleeting conditions of hemianopsia and Wernicke's pupil-symptom. The lesion was a tumor of the *dura mater* pressing against the brain in the region of the fissure of Sylvius, and evoking the symptoms by disturbance of the blood circulation.

A case published by Leyden shows that tumors of the lenticular nucleus, the optic thalamus, *crus cerebri*, and the temporal lobe of the cerebrum may encroach upon the optic tract and cause homonymous hemianopsia and the hemiopic pupil. In this case of Leyden's there were left hemianopsia and Wernicke's pupil-symptom, associated with left hemiplegia, left ptosis and facial paralysis, and finally conjugate deviation of the eyes to the right. The last symptom indicated a lesion in the right cerebral hemisphere, while all the other symptoms, collectively, suggested a lesion in the right *crus cerebri* and optic tract. At the autopsy a tumor was found that involved the *crus cerebri*, optic tract and lenticular nucleus on the right side of the brain.

Syphilitic meningitis and gummata and tubercles are the most frequent lesions of the optic tract. Haemorrhages and softening are uncommon.

There are no pupillary symptoms that enable us to differentiate between the hemianopsia due to lesion of the optic radiations and that due to disease of the cortical visual centers.

While the association of Wernicke's symptom with homonymous hemianopsia would indicate a lesion of the optic tract, its conjunction with bitemporal hemianopsia would indicate a disease of the middle segment of the chiasma involving the decussating fibers. If the hemianopsia were unilateral, and not dependent on disease of the retina, it would suggest an injury to one optic nerve. The hemianopic pupil is a rare symptom in infantile paralysis. In hydrocephalus, owing to the pressure by the floor of the distended third ventricle on the optic chiasma, there is great liability to bitemporal hemianopsia and the hemiopic pupil.

It is because of the great difficulty in eliciting Wernicke's symptom that it was so long overlooked. It was not observed until several years after it was announced by Wernicke as one that should, on theoretical grounds, be capable of detection.

Pupillary symptoms in *epilepsy* are quite important at certain times. During the epileptic seizure the pupils are quite variable. Usually at the commencement of the attack there is spastic myosis

or the pupils are normal, but they undergo paralytic mydriasis during the phase of tonic spasm and so continue until the return of consciousness. The convulsions of meningo-encephalitis are associated, on the other hand, with a contracted pupil. The fact that the light-reflex is retained during a hysterical convulsion but is lost during an epileptic spasm, is of value in differentiating one form of convulsion from the other. Another important aid in distinguishing a true epileptic convulsion from that of hysteria or of a malingerer is the presence in the former of hippus or rapid alterations of the pupillary diameter.

In locomotor ataxia the pupil may be normal or even dilated, but commonly it is contracted. Frequently the contraction is so extreme as to constitute the condition known as "pin-hole" pupil, a condition due, not to irritative myosis, but to a secondary contracture of the *sphincter iridis* due to paralysis of the *dilator pupillae*. The abnormal condition of the iris may be due to a lesion, either of the brain or the spinal cord. In the former case the seat of the disease is in the pupil-dilating center of the floor of the aqueduct of Sylvius. In the latter case the lesion is located in the upper dorsal and the lower cervical portion of the cord. In either case the myosis of pupil is of the paralytic type. In those cases, usually early, of locomotor ataxia in which Meynert's fibers are not involved there is only a medium myosis and the pupil reacts to the light reflex as well as to convergence, but later in the disease when the fibers of Meynert are involved, the pupil while responding to the convergence stimulus, does not do so to light or only very slightly. This constitutes the very valuable clinical symptom known as the Argyll-Robertson pupil. If Meynert's fibers are uninvolved the pupil reacts to light, as well as to convergence even when it exhibits the extreme myosis, known as the "pin-hole" pupil. In testing for the presence of the Argyll-Robertson pupil care must be exercised not to confuse unilateral reflex blindness with unilateral reflex iridoplegia, for in both cases there is absence of direct light-reflex on the diseased side, but response to the convergence stimulus. In the former case there is a lesion in the centripetal pupil-contracting fibers, either in the retina, optic nerve, optic tract or superior brachium. In the unilateral iridoplegia the lesion is in the *sphincter iridis* subnucleus of the oculo-motor nucleus. The Argyll-Robertson pupil occurs not only in locomotor ataxia, but also in paralytic

dementia, atrophy or softening of the brain, insular sclerosis, in tumors of the basal ganglia adjacent to the third ventricle, in hydrocephalus, syphilis of the brain, and as a congenital defect. If there should be a response of the pupil to the direct light stimulus, but not to the convergence stimulus, we would have the reverse of the Argyll-Robertson pupil, indicating a lesion of a particular part of the oculo-motor nucleus. In a considerable number of the cases an elliptical pupil has been noted with the long axis in the vertical meridian. Both in the late and the early stages, in many cases, the pupils present inequalities of size. The commonly accepted theory of the Argyll-Robertson pupil is as follows: It is a lesion of Meynert's fibers, that is, of the fibers extending from the superior quadrigeminal bodies to the nuclei of the third nerves in the floor of the Sylvian aqueduct. This explanation is sufficient in the vast majority of cases of locomotor ataxia, because the Argyll-Robertson symptom is most frequently binocular. But in those cases where the symptom is monocular the current explanation is inadequate. It can be readily understood that if only the fibers of Meynert on one side be diseased, the others being normal, the direct light-reflex may be elicited on the normal side and the indirect or consensual light-reflex may be developed through the internuclear fibers that connect the nucleus of the *sphincter iridis* of one side with that of the other. In consequence of these facts Bevan Lewis, Heddaeus and Jessop teach that the Argyll-Robertson pupil is a nuclear disease, that is, a disease of the nucleus of the *sphincter iridis* nerve. Heddaeus believed that there is no direct communication between the nucleus of the *sphincter iridis* nerve and that of the ciliary-muscle nerve, and that the branch of the third nerve going to the ciliary muscle and the *sphincter iridis*, contains two independent roots, one from the nucleus of accommodation and the other from the nucleus of the *sphincter iridis* muscle, so that the disease causing loss of the direct light-reflex could be fascicular as well as nuclear, for destruction of the nerve-root springing from the *sphincter-iridis* nucleus would give loss to the pupil reflex from direct light, as well as destruction of the *sphincter-iridis* nucleus itself. Yet Swanzy points out that this theory is not tenable, because myosis is a very frequent accompaniment of the Argyll-Robertson symptom. If the view of Heddaeus were true, the *sphincter iridis* would always be para-

lyzed in these cases and the unopposed *dilator pupillae*, under the tonic influence of the sympathetic, would always dilate the pupil, thus giving mydriasis as the uniform symptom accompanying the Argyll-Robertson pupil, whereas myosis is the common symptom. In view of all the facts of the case, Swanzy makes the observation, which is fully justified in my opinion, that there is much to be learned before an entirely satisfactory explanation of the occurrence of this valuable clinical symptom can be given. Peripheral neuritis is liable occasionally to be mistaken for locomotor ataxia, but the presence of the Argyll-Robertson pupil would readily exclude the latter.

Pupillary Symptoms in Insanity.—Anomalies of the pupil are very frequent in the prodromal stages of mental diseases and are, therefore, of great clinical value. They may, in various cases, consist of irregularity of the shape of the pupils, inequality of the size, loss of the indirect or consensual reflex and of the direct light-reflex, the presence of the Argyll-Robertson pupil, of mydriasis or myosis, the absence of the skin reflex, and the paradoxical pupil symptom. In acute curable dementia, or what Berkley calls "states of mental stupor," the pupils are commonly dilated and react only slowly to convergence, to light and to skin stimuli. In syphilitic insanity, mydriasis and irregularities of the pupils are more usual than contraction. The various psychoses of old age manifest irregularities of the pupils, and present pupils that react slowly to convergence, skin or light reflexes. That organic lesions are present in both acute and chronic alcoholic insanities is evidenced not alone by the presence of tremor and occasional paresis of the facial nerve, but also by unequal or myotic pupils. While pupillary inequalities are quite common in the alcoholic insanities, the tardy reaction of the pupil to convergence and light is much less common than in paralytic dementia. In paranoia, abnormalities of iris movement are infrequent, having been observed in about only one per cent. of the cases. And in this connection it is interesting to note that a number of cases of chronic progressive paranoia ultimately develop into paralytic dementia.

Pupillary Symptoms in Paralytic Dementia.—The most common condition of the pupil in this grave disease is marked contraction of the *sphincter iridis* due to paralysis of the *dilator pupillae* through disease of the sympathetic nerve. In this condition the pupils are extremely small and do not expand when the eye is shaded,

and they are uninfluenced by exposure to light. Sometimes, in the early stages of this disease, when there is commencing so-called iridoplegia, the pupil is responsive to a beam of light concentrated upon it by focal illumination; but even then the mobility of the iris is quite limited in extent, and presents the hippus or oscillatory movement with a tendency even to wide dilatation.

This dilatation under focal illumination constitutes the paradoxical pupil-symptom. This paralytic myosis has sometimes been present for ten years before the complete development of the disease. Paralytic myosis, and therefore reflex immobility of one pupil alone, is seldom noted permanently since the other soon becomes involved. In eliciting the symptom of reflex immobility, the convergence and therefore the accommodation reaction should carefully be eliminated. The examiner must also take the precaution to ascertain that the patient's eye is not immobile in consequence of the rigidity of sclerosis, or of atrophy of the iris, posterior synechiae due to a mild or transient iritis, or a myotic drug, etc. The pupillary symptom next in importance to paralytic myosis is the absence of the indirect or consensual light reaction. The consensual reflex is elicited as follows: Both eyes are shaded without touching the skin around either orbit so as to avoid the liability of introducing the complicating sympathetic or skin-reflex of the pupil. Then one eye, say the left, is suddenly uncovered, when the right pupil will undergo a contraction with following wavy dilatation. Berkley states that he has observed this consensual wavy dilatation of the pupil before the loss of the light-reflex, and its appearance in conjunction with mental phenomena has always led him to make a provisional diagnosis of paralytic dementia. Another pupillary symptom of much importance in general paresis is the absence of the skin-reflex. Bevan Lewis found that this reflex was present in only about 11 per cent. of his cases whereas it was entirely absent in about 67 per cent. of his cases. Associated with the pin-hole pupil in this disease is loss of the power of accommodation, especially in the later stages of the paresis. Rarely, in consequence of optic atrophy or other grave defect of vision, one or both pupils may be widely dilated. Gudden states that a little under 5 per cent. of his cases of paresis exhibited double mydriasis. In the early stages of paresis the ophthalmoscope will reveal that the fundus of each eye is normal. Swanzy states that in consequence of a number

of cases that have come under his observation he has been led to think that the full value of the Argyll-Robertson pupil in relation to nervous diseases has not yet been fully appreciated. Dr. Bromwell states that in the vast majority of instances in which he has observed the Argyll-Robertson pupil it has been associated either with locomotor ataxia or paralytic dementia. Gowers has expressed the opinion that this pupillary symptom proves that a degenerative process is at work in the nervous system which raises a strong presumption that the process is of syphilitic origin. We know that the two most potent causes of locomotor ataxia are heredity and syphilis. We also know that these two etiologic factors are by far the most frequent ones in paralytic dementia. While the majority of physicians look upon locomotor ataxia and paralytic dementia as having nothing in common, it seems to me that the facts related above and many others justify the German and French physicians in regarding the two diseases as fundamentally alike, in spite of the fact that in tabes the spinal symptoms are quite constant, whereas in *dementia paralytica* they are of an ever-shifting character. It has been observed that while there is a diminution in the intensity of the oscillations of the pupil (hippus) in locomotor ataxia, their rhythm is unchanged—in paralytic dementia the rhythm is lost. Yet, in spite of these differences, dementia paralytica has been called the half brother of locomotor ataxia.

It should be borne in mind that paralytic dementia and *neurasthenia* have a large number of similar and misleading symptoms. In each, heredity is important, and they belong especially to the middle period of life. In each, a syphilitic history is very prominent, and sexual, alcoholic, and mental excesses are noted. Insomnia, headache, vertigo, irritability, indigestion and inability to concentrate the mind, are prominent symptoms.

A number of cases that have been diagnosed and treated as neurasthenia have ultimately turned out to be cases of paralytic dementia. In differentiating these two diseases, the pupillary symptoms are of the utmost importance. In the eye, mental and nerve clinic of the Charité in Bonn, Thompson found that of those patients who developed paralytic dementia or locomotor ataxia, 90 per cent. had reflex immobility of the pupil to light. Berkley states that many of these patients went to the various clinics under the impression that they had neurasthenia, and he

admonishes the physician to think twice before contenting himself with a diagnosis of neurasthenia in a man or woman who in middle life shows well defined reflex pupillary disturbance, for the prognosis is ominous of insanity. It would be extremely difficult to differentiate paralytic dementia from certain forms of chronic alcoholism were it not for the help of eye-symptoms. In both these diseases, along with the lowered intelligence, defects of speech and writing are noted, as also anomalies of sensation, tremors, and epileptiform seizures. Also in those patients who have peripheral neuritis the patellar reflex is abolished. But the presence of paralytic myosis or contraction of the pupils and other eye-symptoms would point strongly to the presence of paralytic dementia. The prognosis in paralytic dementia is altogether bad. Even those cases which apparently recover for a time and are able to return to business for a year or two, show the lurking presence of the disease by the inactivity of the pupil, associated with slight tremors of the hands, and the abolished or increased knee-jerk.

Occasionally there is inequality of the pupils in *Encephalopathia Saturnia*; also at times in Morvan's Disease, or Syringomyelia.

In Parkinson's Disease, or *Paralysis Agitans*, the pupils are normal, the myosis that is noted being common in healthy elderly persons.

In Landry's Disease, or Acute Ascending Paralysis, although eye symptoms are rare, there has been observed either a loss of the light reflex or a dilated pupil.

In *Myotonia Congenita*, or Thompson's disease, and also in Hereditary Ataxia, or Friedreich's disease, no pupillary symptoms have been observed.

A knowledge of the different phases of mobility of the iris in chloroform narcosis is of the utmost practical importance, and affords a brief, but very instructive review, of the philosophy of pupillary changes. In the excitation stage of chloroform anaesthesia the drug first dilates the pupil by stimulating the pupil-dilating center, thus inducing spastic mydriasis; then later the center is depressed, and still later, as the chloroform narcosis becomes more pronounced, the pupil-dilating center is completely inhibited, so that wide dilatation gives place to medium contraction, through unopposed tonic activity of the oculo-motor nucleus, and we have paralytic myosis. The narcosis becoming more pro-

nounced, the pupil-contracting center is stimulated and produces the "pin-hole" or spastic myosis. As the patient is carried into the condition of profound surgical anaesthesia there is a slight dilatation of the pupil, due to commencing inhibition of the pupil-contracting center in the gray floor of the Sylvian passage. Should a marked dilatation of the pupil now occur, especially a sudden one, it is a danger signal and indicates that inhibition of the pupil-contracting center has been superseded by paralysis of this center, and admonishes us that the life of the patient is in grave jeopardy,—paralytic mydriasis.

Dr. Burnett said the subject was really of more interest to the general practitioner than the specialist, and he had hoped that one of the former would open the discussion. The object of the paper was evidently to emphasize the value of a knowledge of abnormal mobility of the iris as an aid in making diagnosis of diseases of the brain and spinal cord. Dr. Shute had succeeded well in his aim, and all who heard his remarkably able paper must be impressed with the great importance of this knowledge. When the ophthalmoscope was first introduced it was thought that through it we should be able to read all these diseases on the background of the eye, but unfortunately this had not been the case. The ophthalmoscope gave information only as to a limited class of affections, and did not help us much in localizing intracranial lesions. This localization was an exceedingly difficult matter, and any aid such as had been set forth tonight should be utilized to the fullest extent. The relation between the nerves which supplied the iris and the nervous expansion in the skull was so intimate that many intracranial lesions must cause pupillary symptoms. Until recently our knowledge on these subjects had been so limited as to make it impossible to locate cerebral lesions with any certainty, but recent discoveries as to the minute anatomy of the brain were clearing up the chaos of crossed wires, and would enable us to get better results in the future. The connection between ophthalmic conditions and disease of the brain and cord would be made out more easily by studying the pupil and action of the muscles of the globe.

Dr. Clark emphasized the importance of pupil reactions in the early diagnosis of general paralysis. When the diagnosis was made from the mental symptoms it was then too late. By a careful observation of the pupillary changes, however, a diagnosis could be made years earlier. In other mental diseases the importance of the pupil reactions was not so great.

Dr. Carr said that the paper was exceedingly interesting and valuable. He had only one criticism to make, and that was that Dr. Shute had condensed enough material for fifteen or twenty

papers into one. It contained so much that the general practitioner could hardly take it all in. He commended the diagrams for their originality and clearness, particularly that illustrating the methods by which dilatation and contraction of the iris were brought about. It was important to remember that dilatation due to irritation was very different from, and less dangerous than, that which resulted from paralysis of the contracting mechanism. The charts also well illustrated the fact that dilatation of the pupil was more apt to be produced by diseases of the cord, as the dilating mechanism passed through the cord; also, that contraction was more liable to be produced by intracranial diseases in the early or irritative stage. The pupillary reactions had been of great service to him, but so far they had not proved of value in locating brain lesions; the tract from its beginning in the brain to the eye was so long, and the lesions to which it might be subjected were so numerous, that localization was a very difficult problem in the great majority of cases. One could occasionally locate a lesion in the occipital lobe, but this was exceptional. Yet the reactions were of value in showing the presence or absence of cerebral diseases and in differentiating between them; thus they might prove useful in making a differential diagnosis of cerebral hemorrhage, locomotor ataxia, the sclerosis, etc.

Dr. Wilkinson expressed appreciation of the scientific nature of the paper; the only trouble was that it was so comprehensive it was difficult to keep all the good points in mind. In considering this subject, it was well to remember these points: the size of the pupil, the relative size of the pupils, the reaction to light and the reaction to convergence. Back, in a recent interesting article, said that there were only three conditions which caused the loss of the convergence reaction: general paralysis, paralysis of the sphincter and uncomplicated tabetic conditions. De Schweinitz said that in beginning insanity a most conspicuous symptom was alternate dilatation of the pupils—one pupil being dilated at one examination and the other at the next. In concluding, Dr. Wilkinson referred to the occurrence of hippus in hysteria, this symptom being a spasmodic pupillary movement, independent of light—a sort of clonic spasm of the iris. In one case he noted the condition, and told the nurse that the patient would very likely have a convulsion; on the same evening the patient had a convulsion.

Dr. D. S. Lamb agreed with Dr. Carr; the paper was indeed *multum in parvo*. It was not difficult to see how organic changes in the brain might produce direct or reflex pupillary changes, but the origin of these effects in epilepsy, chloroform narcosis, and similar conditions, was not so easy of explanation. Dr. Shute did not mention the cause of contraction of the pupil in opium poisoning; was it a spastic myosis, or was it due to an irritation? It seemed probable that the latter view was correct.

Dr. Wood said that the constantly varying size of the pupils in children indicated that they were peculiarly liable to nervous affections and had an unstable nervous system. They were particularly liable to convulsions during fever or unusual excitement. Dr. Shute's paper was remarkable in that it was a paper by a specialist, but of more use to the general practitioners, and showed a great general as well as special knowledge; it bridged over the chasm between the general practitioner and the specialist.

Dr. Belt expressed appreciation of the paper. If many such papers should be published, some modern authors would have to change their views.

Dr. S. S. Adams commended especially the chart which illustrated how spinal lesions produced pupillary manifestations. This explained the Argyll-Robertson pupil of locomotor ataxia; also the pupillary symptoms in children having spinal lesions. It was easy to understand how intracranial lesions produced pupil reactions, but he was glad to have the point above mentioned made clear.

Dr. Shute, in closing, thanked the members for their kind reception of his paper. There was a great diversity of opinion as to the correct answer to Dr. Lamb's question: some saying that the contraction was paralytic in origin, and others, that it was spastic; most authorities being in favor of the former explanation. The explanation of the changing condition of the pupil in children was to be found, probably, in their ready response to every emotion, thought, etc. The pupil was thus easily influenced, and in nervous children we often saw the peculiar vibratory condition known as "hippus."

THREE CASES OF ENDOCARDITIS IN TWO OF WHICH THERE WAS ALSO PERICARDITIS.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

Case I.—Woman, age 23. Besides the usual diseases of childhood she had typhoid fever in 1902 and rheumatism in 1903. Her fatal illness began in March, 1904, and lasted 18 days; she was in hospital 11 days. She died of double broncho-pneumonia of lower lobes of lungs and acute pleurisy on one side. The heart is about normal in size but shows vegetations on both aortic and mitral valves; these vegetations have caused marked deformation of the aortic leaflets and incompetence. While evidently a chronic case, the absence of recognizable compensating enlargement of the

*Reported with specimens to the Medical Society of the District of Columbia, April 20, 1904.

heart shows that the chronicity does not date back very far, and most probably points to the rheumatism that she had in 1903. The only symptoms that seemed to suggest a heart trouble were substernal pain and aortic murmur.

Case 2.—A man 46 years old, whitewasher and plasterer, so that it may be said that his work was not particularly heavy. He had had the usual diseases of childhood and also malarial fever; and in 1896 had some heart trouble and gonorrhoea, possibly gonorrhoeal endocarditis. His family history was bad so far as that his parents were dead and also 3 sisters and 4 brothers; one sister and two brothers were living. No history of heart disease in any of the family, except himself, could be obtained. At the necroscopy the heart weighed 21 ounces, nearly twice the normal size, and was dilated as well as hypertrophied. The aortic leaflets were thickened and deformed and the valve incompetent. It would seem, therefore, that the chronic enlargement and valvular disease date back to 1896. The history, however, does not mention any symptom of heart trouble until December, 1903, when he began to complain of pain in chest, and this pain persisted. His last illness began February 8, 1904; he was admitted to hospital next day, and died on the 15th, of acute pericarditis and acute or subacute double nephritis. The heart shows some recent lymph and there were also floating lymph coagula and serum in the pericardium.

The important symptoms of the last illness were a sticking pain in the anterior part of the chest under lower ribs, increased in breathing, and nearly every day he vomited, usually a yellowish liquid. He had also a cough and frothy sputa, tinged with blood; eyes jaundiced and watery; tongue, brown; respirations, irregular and jerky, and he was restless and with anxious face; tenderness and dullness over lower part left chest; rales and bronchial breathing, these latter probably due to the lung oedema which was found *post mortem*. His temperature was mainly normal or subnormal; once rose to 99.6 and once to 100.2; the pulse ranging from 86 to 120 and respirations from 30 to 36.

Case 3. Woman, age 60. Except that her father died of some heart trouble this woman's family history was very good. Although 60 years old, she had four sisters and thirteen brothers living and well. She had had the usual diseases of childhood, besides smallpox, pneumonia and rheumatism. Just when she had had rheumatism

was not learned, but her heart trouble probably dates back to the rheumatism. She was a large woman, weighing at time of death about 250 pounds. About Easter, 1903, she had the grippe, from which, however, she apparently recovered, although, as we know, an attack of grippe in a case of heart disease is a serious matter. About September 2, 1903, she began to have a cough with yellowish sputa, and dyspnoea, especially on lying down. Heart beat frequent and irregular. Urine 1010 and albuminous. She was in hospital 17 days, and so far recovered as to be discharged. While there her temperature ranged from 96 to 99.4, pulse 76 to 120, and respirations 22 to 40. She also had a goitre.

She was readmitted to hospital February 18, 1904, and died the 20th. The necroscopy showed a heart weighing 23 ounces; that was excessive even when we allow a certain enlargement as physiological in view of her great weight. There was also dilatation and general chronic adhesive pericarditis. These heart lesions doubtless date back to the rheumatic seizure years before. The aortic leaflets also show the beading vegetations along the occluding surface of the valve, as is found in acute endocarditis.

The goitrous enlargement of the thyroid is, as usual, most marked on the right side, and on section, shows gelatinous cavities, and there were some hemorrhages; probably also degeneration. The microscopic examination has not yet been reported on. I have been uncertain whether to call this case one of exophthalmic goitre because I could not determine any actual exophthalmos. I should state that the trachea shows a pressure flattening on both sides that must have taken part in the dyspnoea.

CASE OF CHRONIC PERICARDITIS AND HYPERTROPHY OF HEART.*

By D. PERCY HICKLING, M. D.,

Washington, D. C.

The heart weighed 27 ounces; was hypertrophied and dilated; some thickening of aortic valve and ascending aorta; old pericardial exudate.

S. D., 41 years of age, colored, male, single, born in Maryland, by occupation a laborer, entered the Washington Asylum Hospi-

*Reported with specimen to the Medical Society of the District of Columbia, April 20, 1904.

tal March 7th, 1904, complaining of pain over the cardiac region with considerable difficulty in breathing, and palpitation; his bowels moved each day, and his appetite was fair; his pulse was 140, his temperature 104, tongue coated, and respirations about 30 per minute. Patient stated that he had been sick for about one week; there was no rheumatic or specific history; there was a pear-shaped area of dullness over the region of the heart; the apex beat had disappeared. A large blister was applied, which covered the fourth, fifth and sixth intercostal spaces anteriorly, and he was given tincture of digitalis and an expectorant mixture; his symptoms improved somewhat until March 12th, when he was seized with an attack of syncope and died in a short time.

Post-mortem showed the pericardium to be adherent to all the structures around it and tightly bound down; it contained about 1,200 cc. of a straw-colored fluid; the heart muscle shows degeneration and numerous vegetations; the pericardium was very much thickened.

SCARLET FEVER.*

By THOS. N. VINCENT, A. M., M. D.,

Washington, D. C.

Scarlet fever may be defined, in one sense of the word, as that one of the eruptive fevers which has the greatest tendency in the course of the disease to the development of serious complications. Up to the present time, although researches of a bacteriological character have been made by many authorities of note, the exact organism has failed to be isolated. In a recent examination of the subject, Dr. F. B. Mallory, of Boston, Mass., found that in four cases of scarlet fever certain bodies were discovered which, in their morphology, strongly suggested that they may be various stages in the development cycle of a protozoon. They occur in and between the epithelial cells of the epidermis and free in the superficial lymph vessels and spaces of the corium. They vary from two to seven microns in diameter, and they stain delicately but sharply with methylene blue. They form a series of bodies, including the formation of definite rosettes with numerous scales,

* Read before the Medical Society of the District of Columbia, April 13, 1904.

which are closely analogous to the series seen in the asexual development of the malarial parasite. And in addition there are closely reticulated forms which may represent stages in sporogony or be due to the degeneration of other forms. Dr. Mallory says that while he personally believes that these bodies are protozoan and etiologically related to scarlet fever, he is far from claiming that such a relation has been strictly and accurately proved.

Notwithstanding the organism of the disease has as yet not been definitely isolated, we are safe in assuming, by reason of its well known characteristics, that scarlet fever is due to some variety of germ, and we are in possession of many exhibitions of the action of this germ in the various tissues of the body, and of its various relations outside the body, and of the very curious method it takes in emanating bodies from one to another, and in propagating the disease itself. We know, from abundant evidence in the sick room, that the disease emanates slowly from the affected person. We know it to be a fact that the air immediately surrounding the person is more heavily charged with the poison, more liable to affect a person coming in contact with the diseased body, than the air some feet distant from the house in which the sick person is. We know further that all the discharges emanating from the body of a person so affected are capable of transmitting the disease, and, curious to relate, that certain discharges and certain effete products from the body are more liable to give it to some persons than others. For instance, we are fully aware of the fact of the extensive poison contained in the scales of the patient, also the poison which is found in large quantities in the discharge from the nose and from the pharyngeal cavity.

But scarlet fever, any way we take it under ordinary conditions, is a disease of curious contrasts. We know it to be a fact that of those persons exposed to it, all things considered, only about one-half contract it, and in many cases a much smaller proportion.

We are familiar with the further fact that there is hardly any disease due to micro-organisms which can be, under ordinary circumstances, so easily controlled by isolation and proper disinfection, and thereby the spread of this fever, to a large number of persons, very largely prevented.

It is curious, in connection with this fever, when we compare it with smallpox, chickenpox and measles, that these diseases at-

tack pretty nearly everybody, wherein they are in marked contrast to scarlet fever. It is curious also, in connection with this fever, how the poison emanating from the body in the scales and the various discharges retains its potency and activity for so long a time. Cases have been reported where the scales confined in a limited space, or packed in clothing, have, after the lapse of a year or so, when brought in contact with a non-immune person, transmitted the disease to that person and caused him to have a severe attack. The same may be said of all the articles of any kind or description made use of in a sick room if not properly disinfected; they can retain the poison for an extremely long time, wherein they again show the potency of these yet to be discovered micro-organisms.

Another curious fact in connection with scarlet fever, wherein it is in contrast to the majority of diseases of a kindred character, is the extreme variation sometimes met with in the type of the disease, notwithstanding that the person attacked may be classified as in the same category of health, and living under the same conditions, and practically having the same ability to resist the disease as others. We have, as a result of this strange action of this poison, reports from hospital after hospital, city after city, near and far from one another, where the disease in one place will be for practical purposes so mild that, in many instances, it will hardly be noticeable, whereas, under what might appear to be similar conditions, it will assume an epidemic form of grave proportions, and will roll up a death rate of 30 and 40 per cent. in contrast to a usual death rate under ordinary conditions of 5, 6 or 7 per cent.

We will find it in some places extending over a long period of time, never attacking at any one time very many persons, whilst, under other conditions, we will find it attacking a large number of persons congregated together, practically scattering its force amongst them in a very short while. In this characteristic it differs from measles, chickenpox, diphtheria and other diseases of a like character in the fact that the number attacked is only relatively large in comparison with the total number exposed to it.

Another peculiarity of scarlet fever is the fact that the attack, when one has been exposed, generally comes on quickly and suddenly, is attended with the prompt showing of its various symptoms, wherein it is again in contrast to the other eruptive fevers.

It is also in contrast with them in that, under ordinary conditions, a person contracts it after an exposure of only two or three days. Here, again, we have a wide contrast in that cases have been reported by authentic observers where scarlet fever has appeared twenty-one days after the person has been exposed to its contagion.

In addition, scarlet fever is quite likely to attack persons who have been subjected to wounds or injuries, and in this category we must necessarily include women during the puerperium. In this regard, we have to consider a very prominent factor, the ability or inability of the person exposed to it to contract the disease. Under ordinary circumstances, very young infants are, for practical purposes, immune to its ravages. The predisposition of age to be attacked by it increases from about one year up to five, and from that point it begins slightly to decline. About the time of puberty, it begins to markedly decline, and about the age of twenty-one years, excepting in rare cases, we may say that a person exposed to its influence generally escapes unharmed.

But here scarlet fever, as all through its course, again proves an exception in that scattered cases have been reported wherein persons up to twenty-five and thirty years of age who have been exposed to it have been attacked, and some of them developed mild and some severe cases. It might be noted in this connection that one attack generally renders a person immune.

Thirty cases, scattered here and there, have been reported of a well-defined second attack, and five cases where persons have had a third attack. However, for practical purposes the third attack is so rare that it may be passed over without any further mention. Another curiosity connected with this disease is the well-known strawberry tongue, which is almost, we might say, peculiar to this disease.

Another curious factor connected with this disease is the great variety of forms which it assumes, varying all the way from the gravest set of symptoms referable to the brain and the spinal cord, coinciding with an obscuration of the eruption, and the usual symptoms of the disease, all the way down to the very mildest imaginable form where, for practical purposes, there is no fever; or the fever, to be more correct, is of so short duration as to escape clinical observation; where the eruption is so slight that only the most accurate observers can detect it; where the

throat symptoms and the kidney symptoms are, for practical purposes, passed over for the time being; and yet, with these two forms and the many variations in the scale, between them we may have developed, from exposure to them, the most virulent set of symptoms, and, at the same time, be at a loss to detect the cause.

The writer cannot here pass this question over without bringing to notice a case of this kind which came under his observation in a foundling hospital in this city some years ago, where scarlet fever broke out in an apparently unknown manner, and where, only after a personal examination of the bodies of all the children of the institution, it was found that a small mulatto boy had been admitted suffering from a slight fine scaling. It was afterwards found by examination of the history of this child before his entrance into the hospital that his was a very mild case of scarlet fever, though his parents considered that he simply suffered from a slight sore throat.

Another peculiarity of scarlet fever is that the diseased surfaces affected by it, if cultures be taken from them, show the presence of pyogenic organisms of the usual kind and variety, and it has been supposed that it is the presence of these organisms in the discharges from the various portions of the body in scarlet fever which obscure and have rendered so difficult up to the present time the attempts to isolate the specific organism which must be the cause of the disease.

Scarlet fever is also peculiar in the tendency of the poison and the micro-organism to attack the various portions of the auditory tract, and, if not properly cared for, the tendency to attack the surrounding bone tissue.

It is also peculiar in that, irrespective of diathesis, it has a tendency to attack the lymphatic glands of the body, and, strange to say, to attack, though not severely, the glands of the loins and of the abdominal cavity. Some observers consider that these glands are more generally attacked than the glandular structures of the chest or of the neck, though it is a matter of clinical note that in scarlet fever it is usually the glands of the neck and of the surrounding tissue which seem to suffer most from the ravages of the disease.

It is curious, too, how the organisms seem to have a predilection to attack the various large joints of the body and simulate complications of rheumatism in the disease, and it may be said

that the effect of the poison so frequently noted in the kidney is nothing more than the repeated effect of the toxins on the kidney structure coupled with, in a majority of instances, the micro-organisms from other portions of the body. When we come to consider the blood we find that, considering the severity of the poison, it does not, under ordinary circumstances, show as marked leucocytosis as other diseases of this group.

With regard to the usual manifestations of the poison in the body, the *fever* as a rule rises rapidly to a maximum in the space of a few hours, and with rare exceptions declines by lysis. In some cases, the fever is a direct index of the severity of the disease and of the complications which may arise, whereas in other cases the fever is entirely out of proportion and out of character to the situation otherwise; and there is probably no other disease of this group where for practical purposes the fever is so poor an index of the situation present. Again the *eruption* is of such strange and such varied types, and can be confused in so many instances with other eruptions, I think that in many cases this is a factor of diagnosis of the disease which has to be thrown out.

Another peculiarity of scarlet fever is the tendency, when once inflammatory action has set up, to more or less destruction of the parts involved, as is evident by the fact that very often in the involvement of the lymphatic glands of the neck, such involvement is generally with marked destruction of the surrounding tissues.

It is possible, though as yet it has been by no means proven, that scarlet fever may be transmitted through milk by reason of the fact that such fluid is obtained from animals therewith infected, though as yet the majority of investigators doubt the authenticity of this, and believe that in most cases where milk is actually known or thought to be the transmitting agent of the disease it becomes such through infection with the scales, which may be transmitted from an infected human being in a variety of ways to this fluid and thereby make the fluid an active transmitting agent.

With these few considerations we proceed directly to the discussion of the *treatment* of scarlet fever. We may consider first the disinfection of the person and the prevention of the spread of the disease. There is hardly a person attacked where more or less isolation can not be put into practice; where the person affected should be placed in an apartment divested of everything save the

necessities for the sick ; where a minimum amount of bedding and of ordinary utensils should be supplied, and where, for practical purposes, the apartment should be as well ventilated as possible ; where the temperature of the room should be, as far as possible, in the vicinity of 68 Fahrenheit ; where the discharges from the body should be promptly removed and an efficient disinfectant used ; where the bedding, on its removal from the sick body, should be promptly subjected to a thorough and systematic disinfection, and where the attendants, both physician and nurse, should comply, as far as possible, with a system of regimen. It is well known that no little spread of scarlet fever is due to carelessness on the part of medical attendants and the nurse in charge of the case, and the promiscuous going in and out of the room, of the rest of the sick person's family. The physician should, so far as he is able, disinfect himself or protect himself from the air and the surrounding parts by a robe sufficient to cover him from the scales and the air. He should be particular that his shoes be also protected in the same manner as his clothing. He ought for the sake of others remain in the room no longer than is absolutely necessary, and on removal from the place he should subject himself to a thorough and systematic disinfection, both as to his clothing and his hair, his face and his hands. As far as the disinfection of utensils and clothing from the sick room is concerned, probably the best disinfectants to use are superheated steam and formaldehyde gas, and where these can not be made use of, strong solutions of carbolic acid and corrosive sublimate. As far as possible one of the most efficient ways to disinfect such discharges as can be so acted upon, is incineration.

With regard to the patient himself, the most prominent factor to be looked at is the fever, and in this there is such a wide variation, as the temperature may range all the way from the slightest rise above normal to 105 and 106, that the question of control of this must be one of individual judgment. If the fever be mild and it be seen that it does not influence for the worse, a plan of expectancy should be assumed. If it reaches a higher grade, 102, 103 or upwards, the writer believes that one of the most efficient means to control it is hydrotherapy. He is accustomed to make use of the tepid sponge, sometimes accompanied with a proportion of alcohol ; this sponge bath to be made use of for effect rather than according to any stereotyped rule, and to be administered

proportionate to the duration of the effect, coupled with the personal feelings of the patient. He has found as a rule in an ordinary case, that it is apt to produce an unpleasant, chilly sensation; and unless the fever comes up in the region of 104 or higher, he has found the tepid bath all-sufficient. He has found in addition that an ordinary cleansing bath is necessary for ordinary cleansing purposes, and in no case acts in a deleterious manner. When the fever assumes higher proportions, he has made use of the coil applied to the head and abdomen, the ice pack as usually employed, cold sheets wrung out of ice water and applied to the patient; and in some cases where the conditions do not prevent, he has found this an efficient agent in the reduction of temperature. In some cases where cardiac weakness was not noted aconite was administered in a solution of potassium. He has found that the coal tar products are apt to cause cardiac weakness, no matter whether it existed before or otherwise, and in some cases their administration has been attended with alarming results. The main factors which have to be principally taken consideration of in the treatment of the fever by the water method are cardiac and respiration weakness, coupled with the prejudice of the parents so frequently to the use of cold water in the treatment of this fever, inasmuch as so many persons are of the opinion that it is the worst thing that can possibly be done.

Under ordinary circumstances, with the application of these methods, the fever can be kept under proper control. In case, however, it resists the methods herein noted, we generally find the same result here as in other fevers, namely, a fatal termination.

The next subject which presents itself for consideration is the throat and its care. In all cases whether mild or severe, the upper ear passages should be thoroughly and systematically disinfected. This disinfection should be regularly carried out and frequently made use of as far as possible in the nose, the mouth, and tonsillar spaces and the pharynx. By so doing there will be a minimum amount of trouble with the glandular structures of the neck. In addition the comfort of the patient will be markedly increased and the general systemic poison of the body tissues will be remarkably diminished.

The writer has found listerine or alkaline and antiseptic washes, and in more severe cases peroxide of hydrogen, to be the most

efficient agents in the cleansing of the throat, coupled with the application to the mucous membrane of crushed ice administered *ad libitum*; also the application to the neck of iodine or ichthyol ointment and the application of ice to the external surface. Where, in spite of all efforts, the throat or glandular structures of the neck become involved he has found iodine applied locally, ichthyol ointment and constant cold applications to be the most efficient agents in reducing inflammation, and where the indications show that pus has formed there is but one thing to be done, and that is its early evacuation. The writer has been struck, however, with a number of cases of lymphatic enlargement of the neck which have apparently gone on to the formation of pus, and which under this treatment have greatly subsided and the neck assumed its normal characteristic without surgical interference.

The next subject which has to be considered is that of kidney complications. It is well to make an examination of the urine every day to quickly and promptly detect the appearance of kidney involvement, and should the symptoms supervene, as they generally will in about ten per cent. of cases, prompt use of cathartics and strict milk diet, with free use of agents promoting the activity of the skin, and an equable steady temperature of the patient's apartment, and clothing the affected person with a light flannel garment for the purpose of protecting the skin from chill, will be found to be very efficient agents in checking the conditions presented. The writer has also found Basham's mixture to be a peculiarly efficacious agent as a tonic, and as an active agent in promoting the flow of fluid from the kidneys.

Should uremic symptoms supervene, the use of chloral, hot steam bath or of saline cathartics and a mild diet properly and judiciously given generally serve the desired purpose, and with the exception of rare cases, under this plan of treatment, most alarming symptoms subside, and after a reasonable time we generally find all the normal conditions of the kidneys returning, as far as we can judge.

The writer is of the firm belief that just as in the case of acute rheumatism being the cause of in later years valvular disease of the heart, so scarlet fever is the cause later in life of Bright's disease of the kidneys, the conditions being produced during that disease and not manifesting themselves until later in life. Persons who have kidney complications and scarlet fever should be sub-

jected to a systematic treatment for a long time, lest they may appear to get well, and a short time after dismissal from the hospital, kidney complications supervene again.

As to food in scarlet fever, the general principles governing fever are here to be applied, and until the disappearance of the fever a liquid diet is indicated, and, all things considered, the more strictly the diet can be brought down to one of milk, the better, for the reason that such a diet not only, all things considered, is more palatable and less irritating, but less liable to inflame an irritated kidney.

Should symptoms of heart failure supervene, the usual restorative agents, cardiac stimulants, are indicated, such as whiskey, champagne, brandy and, if necessary, ammonia, though ammonia administered in the treatment of diseases of this kind is very hard upon the throat.

In connection with this plan of treatment, the writer wishes to report to the Society one hundred cases of scarlet fever treated after this method in the wards of Providence Hospital during a period of seven years, with a recovery, for practical purposes, of ninety-eight of the cases and a mortality of two. One of the fatal cases had, as a complication, high temperature, meningitis, and was of a fulminant type from the outset, and was pronounced by the physician who first saw it as a case next to impossible to recover. The other case was complicated with double mastoiditis, abscess, acute Bright's disease, and finally total suppression of urine. The mastoid abscesses on both sides were operated upon by the present President of the Society, but the case subsequently perished from exhaustion.

It is most important to watch the ear, as the middle ear frequently becomes involved by an extension of inflammation from the pharynx, and just as it is in the case of the neck so is it in the case of the ear, that a systematic cleansing relieves this trouble. Should pus be formed, its early evacuation requires paracentesis.

Should mastoiditis appear, operative procedure is indicated, and it is a safe plan that just as we cleanse the pharynx so we cleanse the external ear in case of scarlet fever and prevent possibly the extension of the inflammation to the drum.

With regard to the joint involvement in scarlet fever, a general tonic treatment is indicated, as it is true that most of this alleged

complication is due to septicemic conditions. Not infrequently chorea develops as a complication that is usually controlled by a supportive plan of treatment. At times scarlet fever has a complication of acute pleurisy and acute pneumonia. Such conditions must be treated as though they were independent diseases, modified as far as possible by the conditions present.

Very frequently at the outset of scarlet fever nausea and vomiting and other gastric symptoms demand prompt treatment. A general regulation of the character and quantity of food administered suffices to bring them easily under proper control. A like statement may be made as to diarrhoea and dysentery, which not infrequently supervene in the course of the disease.

With regard to the 98 cases which recovered, about 5 per cent. had severe throat symptoms at the time when they entered the hospital, and pretty nearly all these cases had as a complication involvement of the glands of the neck. In two of them only was operative procedure demanded. In the rest of the cases, after a shorter or longer period of time, complete recovery occurred, the glands resuming their normal size. One case had as a complication stiffening to a marked degree of the muscles at the back of the neck, but this case finally entirely recovered. About 50 per cent. of the cases had renal complications. About 10 per cent. of this number had symptoms of dropsy connected therewith, but in all these cases, at the time of discharge from hospital, the excretion from the kidneys had resumed its normal characteristics. About 5 cases suffered from joint involvement, with symptoms of acute rheumatic arthritis, and these cases completely recovered by the prompt exhibition of tonics. About 20 out of the 100 cases suffered from inflammation of the internal and external auditory passages. At the time of discharge from the hospital the inflammatory conditions had entirely subsided, the discharge of pus had ceased and the patient's hearing had resumed its normal characteristics. Some were very interesting cases, in the curious ways in which the scaling supervened. One man had entire casts of both hands and feet, coupled with a profuse exfoliation of the skin over the entire surface of the body. In some cases the scaling was so light as to be hardly detected, and from this one extreme to the other, as might be expected, we had all the shades and varieties of exfoliation of the skin. In all the cases the skin persisted in this regard in exfoliating for a very

long time, and we had a great deal of difficulty in keeping patients, who felt perfectly well save for this, in hospital. As to the eruption, we had likewise all shades and varieties present, from the very lightest possible condition to those cases in which the body and the face were extremely dusky red. In fact, in some cases the eruption was so slight and lasted for such a short time that had not other symptoms of the disease supervened in their proper order it would have been a great question as to whether the patient had scarlet fever or not.

With regard to the temperature, we had likewise all shades and varieties; some cases well marked, in others the symptoms almost entirely lacking; whilst other cases had marked high temperature for quite a long time with a remarkable absence of other to be expected symptoms. In this regard the whole series of cases, 100 in number, carried out fully and to the letter what might be fully expected in this disease, that is to say, a marked idiosyncrasy, and great variation in its course and its behavior.

Dr. S. S. Adams congratulated Dr. Vincent on his low mortality in hospital practice, where one would expect a higher death rate. He differed from Dr. Vincent in several minor points. As to the disease being one to be dreaded more than any other contagious disease, Dr. Adams feared measles more than scarlet fever; the mortality was higher in the former, and there were more bad results. Measles was also more contagious than scarlet fever. Experience showed that only a small proportion of children exposed to scarlet fever contracted the disease. He related instances in support of this statement; in one case 7 out of 8 children who had been in intimate contact with a scarlet fever patient escaped infection.

He agreed with Dr. Vincent as to the tenacity of the poison, and related a case in illustration. The child of an army officer was taken by its parents to a house in Maine 7 miles from the nearest village. The child was seized with scarlet fever, and it was found impossible to explain how she contracted the disease; the physician had not seen a case for a year; the child had not been off the premises. Dr. Adams was called in consultation and ascertained that two years before, the child of the present house-keeper had an attack of scarlet fever and died in that same house, but the house had been thoroughly renovated afterward. Recently, she had unlocked a trunk belonging to the deceased child, and had given some playthings to the army officer's child. This explained the mode of infection. The incident illustrated the tenacity and virulence of the poison or contagion of scarlet fever.

As to the variations in type, he believed that this was due to

peculiarities on the part of the patient rather than the germ. Otherwise, how could we account for the variation in type in members of the same family? As an instance, he mentioned a case in which three children in a family had three distinct types of scarlet fever; yet all had been exposed to the same germs. As in the case of other infectious diseases, many climatic, telluric and other causes influenced the type.

As to second attacks, he had never attended a scarlet fever patient whom he had previously attended for an attack of the disease, nor had he met any physician who had done so; but he had attended patients with scarlet fever who were *said* to have had a previous attack of the disease. Authentic cases of a second attack were on record, however, and we could no longer teach that one attack conferred absolute immunity.

He agreed with Dr. Vincent as to the necessity for most thorough disinfection. Much could be accomplished in that way. He knew of no case in which a physician had carried scarlet fever to a patient, but he believed, nevertheless, that the physician should take every precaution to avoid such an occurrence. Dr. Adams used a duck suit in every case of scarlet fever and diphtheria, putting it on and removing it at the house. A linen duster was not sufficient. Dr. Koplik had recently written an excellent article on the toilet of the nose and throat in scarlet fever. It was of great importance, just as in diphtheria. It should be used when the child was tractable, but not when much force must be employed, unless there was some especial reason for so doing. Dr. Adams had long since abandoned the use of force in such cases, as it was more likely to do harm than good.

He took issue with the essayist as to the management of the temperature. It should be remembered that it was a part of the disease, and should be let alone unless there was some special indication. A temperature of anywhere up to 104 was to be expected. Marked cerebral symptoms, however, indicated antipyretic measures. Glandular swellings were also a part of the disease, and were seldom absent. When the glands went on to suppuration, however, the streptococcus played an important part, and these were different from the ordinary swellings and of much more serious import. The treatment outlined by Dr. Vincent was the approved one. Ice applied early would often save much trouble. Dr. Adams related a recent case of scarlet fever, which was the worst that he had ever attended. The child was in a comatose condition for eight or ten days before the temperature declined, and when it did, the adenitis became much worse. The pus burrowed low down into the neck, and deep incisions were necessary. Breathing and swallowing were most difficult, and the child died of starvation.

The Children's Hospital did not take in cases of scarlet fever, but it broke out there once in a while. Only one patient had

died there of the disease, and that was eight or ten years ago. In concluding, Dr. Adams again congratulated Dr. Vincent on his mortality of but 2 per cent.; it was a remarkable record, and one to be proud of. His observations were exact and valuable, and met the approval of all.

Dr. Claytor agreed with Dr. Adams as to the temperature. In an ordinary case, without complications, the temperature rarely gave much trouble. It usually lasted about 36 hours and then subsided. The chart was typical; a sudden rise and gradual fall, requiring only a few days in all. When there were no complications, therefore, it was rarely necessary to reduce the temperature. With regard to repeated attacks, the possibility of an error in diagnosis should always be borne in mind. This was particularly true of mild cases, when the rash was atypical, and in negroes where the diagnosis was not made early, but by the desquamation.

Dr. Acker said that Dr. Vincent had given an admirable description of the treatment of scarlet fever, and he agreed with him in nearly all that he had said. He understood him to say that the temperature required treatment only when it was persistently high. Dr. Acker had never known of a case in which a physician carried the disease to other patients. Measles was undoubtedly more contagious than scarlet fever. The latter was not very contagious in the early stage, as was seen from the fact that children exposed at that time rarely contracted the disease. With measles, however, the case was very different.

In histories of multiple attacks there was often an error of diagnosis. He had seen the disease, apparently, three or four times in the same individual, but the malady was in reality not scarlet fever at all, but ptomaine poisoning. The appearances were almost identical with those of scarlet fever, even to the desquamation.

Throat cultures should be examined in every case for diphtheria, and anti-toxine should be administered if the result was positive. It was unfortunate that anti-streptococcus serum had proved disappointing. Urotropin had recently been recommended to prevent kidney complications, and he intended to use it hereafter, especially in severe cases. Salicylates gave the best results in joint cases. Locally, 10 per cent. of ichthyol in lanolin was beneficial. In concluding, Dr. Acker stated his belief that little was gained by placarding houses in which there were scarlet fever or diphtheria patients.

Dr. Thomas C. Smith said that he could go farther than Dr. Adams; he had never even heard of a physician who communicated scarlet fever to a patient. He had not lost a scarlet fever patient in the last twenty years. He had lost them early in his practice, but it seemed that the cases now were milder than formerly. He had also seen but few instances of ear complications, although they were not uncommon. An ordinary temperature

should be left alone ; watch the child, and if the fever rose too high, use your judgment. Mild cases were more treacherous than severe ones, because they were not watched ; the parents did not take as much precaution, and there was more liability to renal complications. Several years ago, he was called to treat a boy who was having uremic convulsions ; he was puffed up with anasarca. After much questioning, Dr. Smith ascertained that about a month previously the boy had had a slight rash, but had gone to school all the time. The boy had a mild attack of scarlet fever, with renal sequelae.

Scarlet fever convalescents should not be allowed to exercise too much or too early ; the toxins caused a deterioration of the tissues, and harm was sure to result if they were not allowed to recover before being subjected to strain. In illustration, he related an instance in which a boy fainted from getting about too early. He agreed with Dr. Adams as to the management of the throat ; violence should not be used. If the child was tractable, however, use some mild mouth wash, and plenty of water and common sense.

Dr. E. L. Morgan expressed a firm conviction that physicians did carry scarlet fever to other patients. He mentioned the case of a well-known physician who attended a scarlet fever patient in one part of this city, and then went to another section where there was no scarlet fever and gave the disease to a patient, who died. Why could not the physician carry the poison in his clothes as well as dolls and other inanimate objects? He related an instance in which a funeral wreath was taken to the country from this city and there caused an epidemic of scarlet fever. The wreath was taken off the coffin, carried all day on a slow Virginia train to Richmond. The next day (second day after funeral) it traveled on a canal boat twenty miles and thence five miles by carriage across the country, hung out of a window (January 17), snow being on the ground, and it was cold weather. There was no scarlet fever in that locality at that time. Seven cases occurred, five in the house with the wreath. Two doctors were staying there at the time. One doctor carried the disease home with him and two of his children had this disease. One case died at the house where the wreath was. Other cases were of a mild type. There were many more cases. He believed that little was gained by placarding houses for scarlet fever.

Dr. A. F. A. King said that the fact that it was possible for a child to have scarlet fever, like most infectious diseases, *in utero*, would help to explain the immunity which some individuals exhibited toward the disease. This was best seen in the case of smallpox ; children had been born in the pustular stage. A case was recorded in which twins were born, one with smallpox and the other without. Many years ago he saw a number of cases of malignant scarlet fever in adults, in Virginia. They were very

different from the mild cases usually seen. All died on the third or fourth day. The throat, vulva and vagina presented shreds of offensive sloughing tissue.

One might have several hundred mild cases without a death, but it was very different with the malignant cases. The former tended to get well spontaneously, if common-sense, water and mild treatment were employed.

During his attendance on the malignant cases—all of which were rapidly fatal—he was unpleasantly concerned to find his own throat and tonsils somewhat red and sore and was beginning to fear he was infected with the disease. On reading in *Wood's Practice*, which was the popular text book at that time (1861), he was relieved to find the statement by Dr. Wood, that he never went through an endemic of malignant scarlet fever without having some throat symptoms himself, but not of a serious nature. This proved to be the case with Dr. King, much to his relief and peace of mind.

Dr. Glazebrook reported a case under his care. A lady, 40 or 42 years of age. She was seized with an attack of acute tonsillitis, for which she consulted a specialist. He saw her twice, and then was suspicious of a rash which she had along with the throat symptoms, and advised her to consult her family physician. Dr. Perry saw the patient for Dr. Glazebrook, and made a diagnosis of scarlet fever. Dr. Glazebrook saw her later in the day; the light was poor, and although the symptoms somewhat resembled scarlet fever, he was inclined to believe that the woman would escape the disease. On the following morning, however, the diagnosis of scarlet fever was confirmed, and she was sent to Garfield Hospital, where she still was. While the case had been a fairly mild one, she had had nearly every possible complication; the kidneys were affected, the specific gravity of the urine being 1033 for several days, and there were also casts. There was also a marked joint involvement, stiffening, etc., for which he hesitated to give a salicylate on account of the condition of the heart. The temperature today had been 101-102.

As to variation in type, he had seen many cases at the Washington Orphan Asylum, and while the patients were in an unfavorable condition to withstand the disease, the cases had been comparatively mild, most of the children being only sick enough to remain in bed a few days. Yet there had been severe epidemics there. It seemed to him that variations in type were due to differences in the germ as well as to personal and other circumstances.

Dr. Haslup-Lamb spoke of the transmission of scarlet fever through the medium of a second person. Such transmission was possible, as was evident from the following case: She attended a child ill with the disease in the desquamative stage; she also, to assist the mother, bathed two other children in the family.

Although she used every possible precaution to prevent giving the disease to the children, they came down with scarlet fever at the end of about two weeks, and she believed that there was no doubt that she herself was the medium of transmission, as she only had come in contact with the children. She herself had been attended in three separate attacks of scarlet fever by the same physician—when she was 8, 12 and 29 years of age; the stage of desquamation in each attack was that usual in scarlet fever. They were not attacks of ptomaine poisoning.

Dr. Kober said that the type varied in individuals and in epidemics as well. This had been recognized by the ancients, who attributed the difference to aerial conditions. In one epidemic which he witnessed the mortality was only 2 per cent.; in another, in the same class of persons in the same community, the mortality was 66 $\frac{2}{3}$ per cent. This convinced him that there was a great difference in the virulence of the germ. As larger plants were influenced by atmospheric and other conditions, there seemed to be no reason why delicate organisms low down in the scale of vegetable life should not be also. He related a case to show that scarlet fever could be carried 65 miles by an individual. The man referred to rode 65 miles in the open air after having come in contact with a patient ill with the disease, and that night slept on a pallet made at his sister's house; the following morning a child 15 months old played on this bedding and ten days afterward the child developed scarlet fever.

As to the mode of transmission our knowledge was not entirely conclusive. Many cases were undoubtedly transmitted by milk. In 68 out of 99 milk-borne epidemics which Dr. Kober investigated the disease existed at the milk farm or dairy. The milk was infected by dairy employes who nursed the sick, or otherwise came in contact with scarlet fever. One of the greatest epidemics occurred on the outskirts of London in 1885, and an investigator at that time thought that he had discovered the organism which caused scarlet fever. There was much controversy about the matter for years, the main point being whether there was a disease in the cow which could give scarlet fever to human beings. Dr. Kober concluded that many of the cases were instances of streptococcus and staphylococcus infection. It was easy to see how milk was a good medium for the growth and multiplication of these germs, and it was also easy to see how these infections might be mistaken for scarlet fever. In fact the inference was reasonable that there was a pseudo-scarlet fever, just as there was a pseudo-diphtheria, due to streptococcus and staphylococcus infection.

Dr. Barnes first spoke of the etiology of scarlet fever. Dr. Mallory had given no proof that his protozoon was the germ of the disease; it had only been found in four cases and never in the first 48 hours. Doehle, in 1892, discovered a similar organism,

but his claims also had not been substantiated. The true etiology of scarlet fever was therefore unknown. The streptococcus, however, undoubtedly played a very important part. According to Baginsky it was found on the tonsils in almost every case; in the blood during life, in 15 per cent. of cases; and in the blood after death in 80 per cent. [Jockman]. It was not found before the third day. In fulminating cases the streptococcus might not be demonstrated; uncontaminated therewith scarlet fever usually ran a mild, uncomplicated course. This organism was generally accountable for the severity of the disease, especially the complications and sequelae. These complications could usually be prevented by the early use of an efficient serum, administered in sufficiently large doses. He had collected 273 cases in which the serum was used. In Ottawa, Canada, the mortality in hospital cases where the serum was used was 2.6 per cent.; outside, it was 15 per cent. Escherich reported 112 cases in which serum was administered, most of them being of the severe type; he said that the result was little less than magical, and believed that it was only a matter of time before the treatment would take its place beside that of the antitoxin treatment of diphtheria; injected early, the temperature dropped in 4 to 12 hours, and the severe symptoms cleared up, showing its undoubted value. As in the case of diphtheria antitoxin, the best results were obtained from early administration. Escherich used doses of 100 to 200 cc. Aronson's polyvalent serum was the best.

Urotropin appeared to be efficacious in preventing renal complications. Widowitz, in 102 cases administered one-twentieth to one-half gram *t. i. d.*, for three days; there was no nephritis in any of these cases. Hydrogen peroxide and alcohol were the best remedies for preventing ear complications and sequelae. He agreed with previous speakers as to the toilet of the nose and throat. Glandular enlargements were best met with ice, ichthyol and sodium salicylate. For local application during the stage of desquamation, thymol, eucalyptol and olive oil were better than carbolic acid, being less poisonous.

The law was somewhat at fault as to isolation, in that it was possible to isolate the patient but not his people. Dr. Barnes had had a patient who died from a second attack of scarlet fever. The child had the disease, and the mother had erysipelas at the same time; a year later the mother came down with erysipelas; the child with scarlet fever and died. The physician should use every precaution as to clothing, cleanliness, etc., to prevent carrying the disease to other patients. An uncleanly physician could carry as much disease as anyone else.

Dr. Barnes referred to scarlet fever *vs.* measles. Dr. Adams had said that he feared the latter more than the former. He was evidently thinking of the ravages of measles in a new country, *e. g.*, among the Fijians. As a matter of fact, the mortality in previously healthy children, and under favorable environment,

was practically *nil*. In tubercular, wasted and hospital children it was very high. The mortality from scarlet fever in mild, uncomplicated cases, under favorable environment, was also practically *nil*, but the severe, fulminating type was usually fatal. The prognosis in all cases must be guarded until the time limit of kidney complications was past, and in fact until the patient was well.

Dr. Vincent, in closing, thanked those who had joined in the discussion, and expressed appreciation of the interest which had been manifested in his paper. He had little to add to what had been said. A reading of his paper would show that he did not recommend antipyretic baths under all circumstances, as some had evidently inferred. If the physician required the family and attendants to be careful as to the transmission of scarlet fever, he himself manifestly should use every precaution to the same end. Dr. Vincent hoped that the serum treatment would prove to be as valuable as predicted by Dr. Barnes. As yet it had been used in this country but little; and as we were in ignorance as to the organism which caused the disease, this subject must, for a time, be held in abeyance.

CASES OF FIBROIDS OF UTERUS.*

By HENRY D. FRY, M. D.,

Washington, D. C.

1. Fibroid, weighing $7\frac{1}{2}$ pounds. Interesting on account of the breadth of the pedicle. The stump was seven inches or more in diameter. The tumor was very vascular, bleeding was very profuse, but was checked successfully. The patient, however, died 24 to 36 hours after the operation.

2. Fibroid removed from a woman in the seventh month of pregnancy. She was very anemic. Diagnosis was made of a large fibroid which lifted the os above the pelvic brim. Dr. Fry hoped to keep the woman in the hospital a week or so before operating, but labor came on, and he removed the child by Caesarean section. The child died the next day, the mother recovered.

3. Fibroid, very much like the above, but patient was not pregnant.

* Reported with specimens to the Medical Society of the District of Columbia, April 20, 1904.

SOME RESPONSIBILITIES OF THE MODERN
OBSTETRICIAN.*

BY HENRY D. FRY, M. D.,

Washington, D. C.

“Times change and we change with them,” is an old and trite saying, which loses none of its force when applied to the healing art; not to one or several, but to all its branches. The changes in the principles and practice of medicine and surgery are so great and so frequent that he who runs must read.

I wish to direct your attention to some of the changes that have taken place in the practice of obstetrics during the last half century; changes which compel the modern obstetrician to renew his youth constantly in order to keep in touch with modern ideas.

First comes the development along the line of antiseptic and aseptic work, and with it the revolution in obstetric surgery. A closer study of the physiology and pathology of pregnancy and of normal and abnormal labor also demands attention. These considerations open up a field too extensive to cover except in a general way, and, as I am talking to medical men of experience, I will attempt only to point out some of the more important responsibilities that have been added to the work of the present day obstetrician.

First, let me direct attention to the importance of careful supervision of normal pregnancy. The custom was, but is no longer, to put off consulting the physician until a short time before labor or even until labor had begun. The physician entered upon his duties without knowing anything of his patient's condition. She may have impaired circulation from a neglected heart lesion which threatens a serious complication; she may be on the verge of eclampsia from insufficient elimination of toxins. If a primipara, the obstetrician may be confronted by an unsuspected pelvic deformity. Fortunately, all this is changed, and the careful supervision of pregnancy is one reason for the diminished maternal morbidity and mortality. We should encourage the pregnant woman to consult her medical adviser early in gestation, and to keep in touch with him throughout that time. Some women may hesitate on account of pecuniary reasons, but this can be obviated by making the obstetric fee include all necessary attendance before,

* Read before the Medical Society of the District of Columbia, April 20, 1904.

during and after labor. The young pregnant wife is often found in a position when, removed from her home, she has no one to advise her regarding her condition. In many cases she is still more unfortunate, and finds herself surrounded by well meaning and officious friends and neighbors whose advice is worse than none at all. For these reasons the physician should not consider any detail too insignificant to need consideration. One of his first duties is to secure a competent nurse; one who thoroughly understands the meaning and importance of asepsis. A good nurse can give also comfort and advice to the pregnant woman and superintend the preparations necessary for the confinement.

Much nonsense has been written about the diet of the pregnant woman. Some advise food rich in phosphates and lime salts in order to furnish the infant, material for building up the bony system. Others again, recommend a diet which is supposed to facilitate the easy birth of the baby and is so regulated as to eliminate the bone-forming elements for the purpose of delaying ossification. These are contradictory and supposedly in the baby's interest in one case and the mother's in the other. It is the part of wisdom and common sense to advise a mixed diet of fresh meats and vegetables, plainly cooked and digestible. If eliminative action of the kidneys permits, a reasonable allowance of nutritious food and meats tends to prevent the impoverishment of the blood which so often comes on in pregnancy. Fruits out of season should be prohibited as well as sweetmeats, pastry and rich articles of diet.

Inquiry should be made regarding the daily life of the pregnant woman: exercise, rest, sleep and the avoidance of social dissipation demand attention. It is a prevalent belief that *much* exercise is demanded, and the pregnant woman is often forced against her inclination to take long walks in all conditions of the weather. In the early months, her nausea, loss of appetite and mental depression are often followed by physical weakness, while in the last months her discomfort from abdominal distention and relaxation of the pelvic joints, contraindicate much exertion. It is not intended to prohibit exercise. There are some women who feel unusually well under these circumstances and enjoy long walks, but "the wind must be tempered to the shorn lamb," and the less robust women should be warned against fatiguing themselves by over exertion.

Particular stress is laid upon the importance of the systematic examination of the urine during pregnancy. Beginning in the early months, it should receive the attention of the conscientious obstetrician, who increases his watchfulness as gestation proceeds. The mere absence of albumen should not satisfy him, as we know there is an antecedent condition in which deficient elimination of solids is accompanied by a toxemic condition. This condition may even produce eclampsia, and albuminuria may be secondary. At the Columbia Lying-in Hospital we meet with many cases of neglected albuminuria, and women are sent in with eclampsia. In fact, our mortality is chiefly from this cause.

In private practice, among women of a higher social scale, the same neglect exists to an inexcusable degree. Personally I have been called to see the wife of a physician suffering from eclampsia, whose urine had never been examined during her pregnancy. This is one of the responsibilities no conscientious obstetrician can shirk.

The condition of the heart, the blood, the lungs, &c., demands investigation. Having given careful attention to the hygiene of pregnancy, and having studied closely the condition of his patient throughout this period, there yet remains a final and important duty to be performed. That is, to carefully examine the patient two or three weeks before her expected confinement and ascertain by palpation, auscultation and pelvimetry the presentation and position of the infant, its viability, and the character of the woman's pelvis. Valuable information is thus obtained in advance, and to be forewarned is to be forearmed. Of the utmost importance is the early knowledge of existing disproportions between the diameters of the foetal head and those of the mother's pelvis. Steps necessary to meet the situation must be taken, and whatever is to be done must be elective. This is the secret of success in operative obstetric work. If the case be one suitable for symphyseotomy or Caesarean section, do not attempt to deliver by version or forceps and then resort to surgery. Carefully study the situation first and obtain a clear conception of the condition of the pelvis and the existing disproportion between the head and pelvic canal; select the method of treatment best adapted to each case and carry out that procedure in the first place, and do not resort to it after the failure of inappropriate substitutes.

Under the head of pathology of pregnancy, I shall only refer to the responsibilities of the modern obstetrician in the early recognition and treatment of the toxemia of pregnancy, ectopic gestation and placenta praevia.

To be successful, the treatment of these complications depends very much upon early diagnosis. The obstetrician must be familiar with the clinical histories of these conditions and he must be ever on the alert to look for them. Delay is often fatal, and he does not rise equal to the emergency if he fails to make an early diagnosis and institute prompt aggressive action. In the management of normal labor I will refer to only a few of his responsibilities.

First, I wish to define what is normal labor. There must be a proper relation between the expelling power and the resisting force. There must be a normal presentation and position. The normal presentation is vertex and the normal position must be one of the occipito-anterior varieties. This definition places occipito-posterior positions in the abnormal class. While it is true that some occipito-posterior positions rotate promptly many of them do not, and as I will mention later they often give serious trouble. When they do rotate promptly they then pass into the normal class.

The first responsibility to speak of, one which modern practice demands, is that of careful aseptic technique. Surgical work also makes this demand and obtains it in a far greater degree. One would commit an inexcusable blunder to operate without making every effort to follow strictly the rules of asepsis, but in the conduct of normal labor it is often neglected. The hands are frequently scrubbed in a perfunctory way and dipped carelessly into a bichloride solution. Carelessness marks the entire attendance, and puerperal infection still claims more victims than all the other childbed diseases combined. It is needless for me to enumerate the necessary precautions that ought to be taken to prepare the obstetrician, the patient, the nurse and the surroundings. The painstaking and thorough scrubbing of the hands and forearms should precede the use of antiseptics. The obstetrician should remove his coat and put on a sterile operating gown. The use of rubber gloves is a great advance in the aseptic technique of the lying-in room. Statements have been made that in foreign clinics, the morbidity and mortality are little improved by this means, but we recognize what the rubber

gloves do in surgical work, and there is no reason why they should not be a great safeguard in obstetric work also, provided the other details are carried out equally well. Since the introduction of the use of the gloves in Columbia Hospital we have not had a single case of infection, and even the grumbling temperatures have disappeared, that always marked the advent of a fresh interne to take charge of the work of the institution. The laity have been educated up to the point where they know the cause and meaning of puerperal fever, and they expect and demand every care in this regard. I recently received a letter from a patient whom I had attended in her first labor. She had been delivered prematurely the second time and wrote that she got along nicely, although worried because the doctor who had attended her had not worn a sterile coat and rubber gloves. If any trouble had followed this confinement, the medical attendant would naturally have been criticized severely because he had failed to employ the technique she looked for.

Vineberg in an article on "The Treatment of Puerperal Fever" makes the following observation from Rosthorn's maternity at Grats (*Am. Journ. Obstet.*, Sept., 1903, pp. 325-338): "Women in labor examined with the bare, disinfected hand gave a morbidity of 39 per cent. Women examined with gloved, disinfected hands, a morbidity of 29 per cent. This difference in favor of the gloves loses its force, according to Stoltz, when a comparison of the same periods is made with puerperal women who were not subjected to any vaginal examinations. In the first period the morbidity when no examinations were made was the same as when the bare, disinfected hand was used, and in the second period when no examinations were made the morbidity was the same as with the gloved, disinfected hand."

It proves to my mind that examinations with the disinfected hand, gloved or not, do not increase the morbidity.

Granting the correctness of this observation, it overcomes the objection to frequent vaginal examinations, provided, of course, the hands be disinfected. A single examination by a careless obstetrician is more dangerous than a dozen examinations made by one who carries out a strict aseptic technique. External examinations give little information regarding the progress of labor, and the obstetrician who seldom practices the touch loses the skill which enables him to follow the steps of the mechanism of labor.

Nor is that all he loses. Many obstetricians in active practice today make no effort to ascertain the correct position of the head and the relation of its diameters to those of the birth canal. Flexion and internal rotation are lost to them, and in the conduct of normal labor they degenerate to the level of midwives.

Besides making a diagnosis of position and watching the progress of the mechanism of labor, the examining finger is valuable. It serves to correct a displaced os; it recognizes the absence of the bag of waters, and by raising the head facilitates the passage of the "forewaters;" it relieves a pinched anterior lip. It is the obstetrician's duty to come to the assistance of nature by dilating a rigid os and not permit the first stage of labor to drag along until the patient is exhausted when her strength is most needed. For these reasons, I protest against the late advice of making few or no vaginal examinations. The modern obstetrician must make them if he wishes to give skilled attendance. The glamour of operative work has blinded the eyes of the man who should manage normal labor scientifically.

If experience has brought him the knowledge and skill necessary to make himself most useful to suffering woman in this line of the healing art, the possession of those qualities which enabled him to succeed here will too often carry him away to the field of surgical work. The result is, the science and art of obstetrics, pure and simple, is less scientifically carried out today than any other branch of medicine. Another factor adding to this result is that nearly every family physician is also the obstetrician. Obstetrics as a specialty is behind all other specialties.

Under abnormal labor, I shall refer to but one complication. It is frequently met with, sometimes overlooked, and causes no end of trouble. It prolongs labor, often requires artificial delivery with sacrifice of the child and soft parts of the mother. The treatment of unrotated occipito-posterior positions has claimed much of my attention in past years and the longer I practise obstetrics the more I feel the importance of the subject. I have already written three communications to our local obstetrical society, and feel there is much yet to say on the subject. In my experience occipito-posterior positions occur much more frequently than the text books state, and delayed anterior rotation is the cause of much of my consultation work.

Weak and inefficient pains and slow engagement of the head in

the pelvic brim cause delay in these cases, and the duty of the obstetrician is to recognize the condition and be prepared to render assistance if needed. Strong pains and flexion of the head will often overcome the difficulty for the time, but after the head is in the pelvic cavity there is a tendency to partial extension and delayed rotation.

Grandin and Jarman make these practical* remarks "An occipito-posterior position is, as a rule, associated with a slow engagement, and this is often the first factor which attracts the attention of the obstetrician to the fact that the labor is not a normal one. The physician often makes the first examination in a somewhat perfunctory way; that is, he satisfies himself that the head is presenting, and perhaps determines that the cervix is slowly dilating. If such has been his course, and if, after several hours, repeated examination shows but little increase in the influence of firm uterine contractions, he should at once determine what conditions are present which are prolonging the first stage." They then go on to give excellent advice to anaesthetize the patient, introduce the hand and search for the fontanelles or the ear if necessary to obtain accurate information. This is good advice, but it is better still for the obstetrician to do more than make a perfunctory examination in the first place. His responsibility should lead him to do what is required to arrive at definite knowledge regarding the position of the head, in the beginning, and not wait several hours for slow dilatation to spur him on to perform his neglected duty. The management of the complication is divided into, first, that which is indicated before engagement and while the head is movable above the brim; and, second, that which is indicated after the head is in the pelvic cavity.

The different methods employed are postural treatment, podalic version, the conversion of vertex into face presentation, efforts to promote flexion, and manual rectification. The high or low position of the head must influence the line of treatment adopted.

Postural treatment is suitable to both. The objection is, it is uncertain and slow, and it is difficult to maintain the woman for any protracted length of time in the knee-chest position, as recommended by Reynolds. The latero-prone position is less efficient, but is more comfortable, and should be employed while waiting to see what nature will do in the way of spontaneous rotation.

* Practical Obstetrics, p. 117.

Another accessory to more radical treatment is the effort to promote flexion either by pressure upwards with the fingers upon the frontal end of the pole or by drawing down the occiput with the vectis or one blade of the forceps. The conversion of occipito-posterior positions into face with the chin anterior is a questionable expedient which may be employed provided better methods fail. It is advised by some authors at any stage, but it is clearly contra-indicated except when the head is movable above the brim or easily pushed up. The maneuver would be impracticable after engagement, because the occipito-mental diameter is longer than the diameters of the pelvic cavity.

Podalic version is an excellent method of treatment in suitable cases, particularly when forceps and manual rectification are unsuccessful. It will appeal to one who feels lack of confidence in his own skill, and with the head movable above the inlet offers the easiest solution of the problem. But one must be careful not to employ it after delay in the labor and when the head is engaged. Some authorities recommend it even under these circumstances. It is true that under anesthesia the engaged head can be pushed up above the brim and version performed, but the danger is from rupture of the uterus. A maternal death caused me to abandon this method, and I shall never attempt it again except in the early stage of labor with a disengaged head.

Resort to the forceps is the most common way of terminating labor in these cases. Unfortunately the instrument is many times a curse instead of a blessing. Nearly every one who practices obstetrics considers himself competent to use the instrument, and while he may succeed in ordinary cases, he often meets his Waterloo when he undertakes it with the occipito-posterior. Fatal intracranial lesion to the infant and extensive lacerations to the mother are the penalties of brute force. To be compelled to deliver with forceps while the occiput remains posterior is least to be desired of all the methods of terminating labor, and ought to be a last resort.

When the instrument is applied with the head at the brim some recommend to use an instrument with less compressive power, as the Simpson, and insert the blades laterally. This will grasp the head with one blade behind the ear and the other over the side near the opposite eye. Traction is made in the axis of the inlet and the head is expected to rotate between the blades as it de-

scends. Removal and readjustment may be necessary. Another application is the use of the French type of forceps with the effort to apply the blades as near as possible to the sides of the infant's head. Better than either of these methods is to first introduce the hand within the vagina, and, grasping the head, to turn the occiput forwards as much as possible before adjusting the blades. When the head is in the pelvic cavity, the instrument is applied sometimes with the pelvic curve reversed. This makes traction upon the occipital end of the pole and produces flexion. The instrument should then be removed and reapplied with the pelvic curve forwards or the case left to undergo spontaneous rotation.

When the small fontanelle is directed towards one or other sacro-iliac synchondrosis, Whitridge Williams recommends rotating the occiput, by means of the forceps, either carrying the occiput back to the sacrum or forwards to the symphysis pubis. The latter is preferred, and after the rotation is completed the forceps is removed and readjusted, in order to bring the pelvic curve of the instrument forwards. He says it has given such excellent results in his hands that he "employs it to the exclusion of all other methods," and he has ceased to dread occipito-posterior positions.

He stands practically alone in this advice, as modern obstetricians protest against rotation of the head with forceps, on account of the danger of tearing the vagina.

Jewett, Grandin and Jarman, Reynolds, Davis and Lusk unite in condemning instrumental rotation of the head. The advice, therefore, contained in Williams' *Obstetrics*, which is one of our latest text books, must be considered dangerous, and contrary to the opinions of the best obstetric teachers. If the resources of our art were exhausted here we would be compelled to admit our weakness, but fortunately there is one remaining method of treatment which succeeds so often that we seldom need suffer defeat. Sufficient stress is not laid upon the manual rectification of unrotated occipito-posterior positions which offers success when the head is in the cavity of the pelvis as well as at the inlet. Complete anesthesia is necessary, and the hand must be inserted within the vagina, the head grasped, flexed, and forcibly turned to the front.

To prevent recurrence of the displacement the head must be held in its new position with the hand in the vagina until fixed

by uterine action or until one blade of the forceps is applied. When movable at the brim, some recommend to pass the hand into the uterus, and, grasping the shoulder, turn the infant upon its long axis and rotate the body as well as the head. After descent of the head it is not safe or necessary, as advised by some, to push it up above the inlet before rotating it. Such action endangers the integrity of the soft parts and is unnecessary, because when the head is flexed the suboccipito-bregmatic diameter turns easily in any of the diameters of the cavity.

So much depends upon the success of the method, and the success of the method depends so much upon the proper manipulation, that it may be proper to describe it in full. We will suppose the head is in the cavity of the pelvis with imperfect flexion, and the occiput turned backwards, or backwards and to the right, as that is the more frequent position. Under surgical anesthesia the woman is placed across the bed with her hips projecting over the edge and her legs and thighs flexed. The right hand is introduced midway between pronation and supination, the thumb passing to the right side of the pelvis and the fingers to the left. The head is grasped and the fingers next moved to the left until they reach the forehead; this is pushed up and flexion secured. The fingers are again moved to the left side of the pelvis, and by forcibly turning the hand into exaggerated supination the occiput is rotated around to the front. If the force thus exerted be not sufficient to rotate the occiput the following manipulation will rarely fail: Introduce the hand in exaggerated pronation, so that the fingers pass to the right side of the pelvis and the thumb to the left, grasp the head and forcibly supinate the hand. If either movement be successful the rotation should be carried far enough to place the occiput on the left side; that is, in L. O. A. position.

Dr. A. F. A. King commended the paper as eminently practical; all that Dr. Fry had said had been corroborated by his work. What he had stated was pretty generally known. He had omitted to mention the operation of symphysiotomy for impacted head. The occipito-posterior positions were most common in cases of large heads; this had been noted by several authorities. As to Dr. Fry's denial that such a head could often be rotated in the pelvis, this had been noted to occur spontaneously. He commended Dr. Fry's remarks on the neglect of sepsis in private practice; its prevalence could not be denied. To do away with it, the methods and apparatus suggested should be as simple and

economical as possible ; not complicated, cumbersome or expensive.

Dr. Moran commended the paper ; it was clearly written and comprehensive, and he could only emphasize what had been said. Too little attention was given to the pregnant woman. Whether this was due to the fact that the physician was obliged to do obstetrical work or not did not matter ; the fact remained. It was often the custom merely to inquire for occasional specimens of the urine, not asking as to the daily quantity, and not insisting, if the specimens were not sent. As a result the physician was handicapped at the time of delivery by an inadequate knowledge of the conditions present. Careful examinations in the latter months of pregnancy gave invaluable information.

It was also necessary that the physician should be thoroughly acquainted with the mechanism of labor, and in this regard many general practitioners were deficient ; many cases which could be brought safely to term gave trouble because of this lack of knowledge. A posterior position could be diagnosticated almost without an examination ; if there was a long first stage, an early rupture of the bag of waters, and the head did not descend, one could be almost certain, unless a deformity were present, that he had to do with a posterior position. He did not agree that rotation took place in only a small proportion of these cases ; only in a few cases did it fail to occur. The failure occurred usually in multiparae where there had been a laceration of the pelvic floor, one of the forces which make for rotation being absent. Recognizing this, it was an easy matter to manage these cases. Neglect of the necessary precautions, and an inadequate knowledge of the mechanism of rotation caused the disasters.

He agreed with Dr. Fry as to the frequency of examinations and the technique. Examinations could be frequently and safely made if proper disinfection was observed on the part of both physician and patient. The vulva, however, could not be rendered sterile, as had been shown by various investigators ; hence he separated well the vulva before introducing the index finger, in order to minimize the danger of infection. Dr. Fry had correctly said with reference to sepsis that the physician was often at fault. Having a case of septic fever on his hands, he hesitated to call the affection by its right name ; hence the terms "milk fever," etc. While it was often impossible to differentiate between septic fever and certain other affections, it was possible to differentiate the types of septic cases. It was always best to call the fever by its right name.

Dr. Kober emphasized the necessity of increasing the amount of proteids in the food during pregnancy and lactation. An insufficient quantity resulted in anemia, bloating, etc.

Dr. Reyburn said that Dr. Fry's paper had admirably covered the subjects presented. While it was true that the physician

was often at fault with reference to puerperal sepsis, the nurse was also often to blame. The nurse was the cause of infection in the only case of this kind that he had had for several years. This was a positive source of danger, and great discrimination should be exercised in selecting a nurse. He hesitated to differ with Dr. Fry, but he had come to the conclusion in late years that vaginal examinations should be made before and during labor only when absolutely necessary. He commended the paper and congratulated Dr. Fry on his admirable results.

Dr. Chappell expressed particular appreciation of that part of the paper describing the method of rotation. Dr. Fry might think the operation easy, but Dr. Chappell had not found it so. However, he intended to try the method proposed by Dr. Fry, and he hoped for better results in the future. The cases of posterior rotation had given him much trouble, and he usually, in fact in every case but one, had delivered the child instrumentally. He asked Dr. Fry whether he recommended the use of instruments in the cases where anterior rotation of occiput failed. As to antisepsis in private practice, such at least as he had, it was hard to adopt anything but a modified method. In many cases the physician was not summoned until after the nurse had had every opportunity to infect the patient, and had perhaps made one or more vaginal examinations. It would be ideal if the physician could watch and attend a patient from the beginning of her pregnancy, but this was not always practicable; often he was not called in until labor was on.

Dr. Kleinschmidt said that it was necessary for the physician to know exactly what was going on. The urine should be frequently examined for rich and poor alike. In the latter months of pregnancy the position of the foetus should be determined. The physician should observe the most careful antisepsis, both for himself and the patient. He had had cases of posterior position and managed to secure rotation under an anesthetic. With reference to antisepsis, he related the case of a woman in Georgetown. She became infected, and her life was saved by mere chance. The next time he watched her carefully during her pregnancy, and delivered her without the least trouble, labor being normal in every respect.

Dr. G. B. Miller said that last summer he had had a case of posterior position in which the foetal heart sounds were very feeble. He had recently seen a case in consultation in which the same thing occurred. In neither case did the placenta intervene. He had seen nothing in the text-books as to the feebleness of the heart sounds in these cases, and he asked Dr. Fry whether it was significant in any way from a diagnostic point of view.

Dr. C. Norman Howard spoke of the use of cocaine to lessen the pain in labor. Some years ago the method of injecting a solution of this drug into the spinal canal in the lumbar region was tried. It was found that it produced anesthesia below the waist

line, but the uterine contractions ceased until sensation had returned. In France it was claimed that the injections could be so given that anesthesia could be produced without stopping the contractions. If this were possible it would be a remarkable achievement. He had seen nothing about it recently, however, and asked for information upon this point.

Dr. Fry, in closing, thanked the members who had taken part in the discussion. He had expected criticism, particularly as to his statement advocating frequent examinations, but only one member had taken exception. Today, the mass of the profession understood less about the mechanism of labor than was generally known 150 years ago. The physician put his dependence on other things than his knowledge. Just as with the thermometer; formerly, physicians were adept at taking a patient's temperature with the hand alone, but with the introduction of the thermometer this became a lost art. The first thing to do away with our knowledge of the mechanism of labor was the introduction of the forceps. Smellie's ability in diagnosis with the hand, and in turning, 100 years ago, was marvellous; now men were satisfied if they could tell the presenting head from the breech. If the child was not coming fast enough, they put on the forceps and pull it out. The giving up of frequent examinations was also doing away with our knowledge of mechanism. How did Dr. Reyburn know that a case was "doing well," the state of the cervix regarding dilatation, the position, whether the cervix was being pinched or not, etc., etc.? A hundred things must be left to chance without these examinations, and thus the recent fad was doing much harm.

Thorough antisepsis was necessary. Another mistake was to think that one could do nothing during the first stage. The woman must not be allowed to become worn out by delay at this time. By giving an anesthetic and dilating the cervix manually the physician could often save the patient hours of needless suffering. The os could be pulled into the axis of the canal. When the forewaters did not come down, the child could be pushed up by the finger. These were but examples of what could be done in the first stage manually *per vaginam*. Statistics showed that there were no more cases of sepsis with frequent examinations than without them, where proper precautions were taken, as he had demonstrated in his paper.

Dr. Moran had misunderstood him; he did not say that posterior cases did not rotate spontaneously; they did in a large proportion of cases. His experience differed from Dr. Moran's in that the worst cases of occipito-posterior position which he had met with were primiparae, in whom the labor was slower and harder. As to Dr. King's remarks concerning symphysiotomy, Dr. Fry had not considered this subject fully, as he expected to read a paper

on that subject soon. He discussed the operation and said that he believed Caesarean section to be preferable in cases of impaction.

In answer to Dr. Chappell he said that he had not entirely abandoned the use of forceps in occipito-posterior positions; he turned the head, and then applied them in the L. O. A. position. In some cases this was not necessary, the child coming naturally. In answer to Dr. Miller he said that the heart sounds were very liable to be indistinct in occipito-posterior positions. It depended somewhat on the amniotic fluid, which was a bad transmitter of sound. The use of cocaine by lumbar puncture had been largely abandoned. His experience with it had been unfavorable. He had never seen it stop the uterine contractions, however. It had been given up on account of objections by the patient and family, the after effects, etc.

HYPERTROPHIED PHARYNGEAL, FAUCIAL AND LINGUAL TONSILS; THEIR SIGNIFICANCE AND TREATMENT.*

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Hypertrophied pharyngeal tonsil, commonly called adenoids, is a diseased condition of the vault of the pharynx, that portion which lies above the velum. This part of the naso-pharynx communicates with the tympanum, nose and throat, therefore has quite an important relation both anatomically and physiologically to respiration and audition. It is absolutely necessary that the naso-pharynx be in a perfectly normal condition for the respiration and hearing to be normal. An abnormal condition such as these hypertrophies causes a train of symptoms and diseases which exert morbid influences, impair their use, and frequently cause organic changes in the ear, nose and throat. As a rule, adenoids is a disease of childhood, though found occasionally in adults. This condition and its effect upon the system should be familiar to every practitioner of medicine, that he may remove them or have them removed before permanent harm has been caused. It is not the intention of the writer to discuss the etiology of this disease, other than to say that it is, in his opinion, due to a lymphoid diathesis, and may be augmented by colds and other

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inflammations of the naso-pharynx. The etiology plays no part in giving us information as to methods of preventing this condition. Adenoids cause mouth breathing, owing to an inability of the person having them to breath through the nostrils; snoring; speech will be thick and muffled; the child will talk through his nose; the letter N will be pronounced D and M as B. Nasal, laryngeal and bronchial catarrhal inflammations will occur. The subject will catch cold easily. There will be considerable nasal discharge, hypertrophic rhinitis, etc. The blood, not receiving a sufficient amount of oxygen through deficient respiration, will impair nutrition and thereby cause anaemia. The child will generally be undeveloped, shallow chested and a shallow breather, seemingly stupid, dull cerebation; will be unable to keep up in his studies and is often deemed lazy and a dullard at school. The mouth is almost always open, the features assume the typical adenoid expression, an almost positive sign of this affection, upon which a diagnosis can be made with nearly a certainty, without further examinations. The statement has been made, and I think is partially true, that there are children in the various institutions for feeble-minded persons who have enlarged pharyngeal tonsils, and who could probably be benefitted and possibly cured of the cerebral condition by having a thorough removal of these hypertrophies.

Children having adenoids suffer with earache, which often is the beginning of a suppurative otitis media; the pain is intense and boring in character, sometimes causing convulsions, especially in very young children. This pain usually continues until the tympanic membrane ruptures, when relief is obtained. The ear then begins to discharge. After a short period, under proper treatment, the discharge ceases and the membrane heals, and the child has no further trouble with the ear until a fresh cold causes a recurrence of the earache, rupture of the membrane, etc. In some cases the tympanic membrane does not repair, and a chronic discharge is the result, which sometimes causes mastoid abscess or cerebral abscess or both, due to an extension of the pathogenic germs to those structures. The frequent rupture of the membrane causes a defect in the hearing, and the person is very likely to be partially deaf. The scar tissue in the drum membrane will interfere with a proper vibration of the *membrana tympani* and thus cause a certain degree of deafness. I would advise, when

the ear begins to pain the child, to incise the membrane under strict antiseptic precautions, and not allow it to spontaneously rupture. By doing this the pain will be relieved and undesirable consequences avoided.

Laryngitis stridulosa is, in my opinion, frequently caused by adenoids. The child being unable to breathe through the nose, and therefore compelled to breathe through the mouth, the larynx becomes dry, hyperemic and irritable, resulting in this affection, which causes such alarming symptoms in the child and such anxiety on the part of the parents. Torticollis and nocturnal incontinence of urine have been traced to adenoids as the cause in children, and cured by removing these hypertrophies. It should never be advised, because adenoids as a rule atrophy after adolescence, that no operation be done on the child, for the effects of this disease are likely to be permanent and far reaching.

The diagnosis of adenoids, aside from the facial expression, mouth breathing, muffled speech, arrested development, shallow chest, earache and recurring attacks of suppurative *otitis media*, is by means of the mirror and by palpating the vault of the pharynx. In children the mirror cannot always be used. They will not remain quiet, will draw the velum against the posterior wall of the pharynx, and thus prevent a view of the vault being obtained. The fore- or little finger inserted well up in the vault and these hypertrophies sought for, is the best and surest means of diagnosing their presence. The finger becomes trained to impressions in the vault and pharynx, the same as does the finger of the obstetrician become trained in his various examinations. The presence of adenoids is determined by the lack of smoothness of the vault, by its corrugated feeling. Luschka's tonsil and the Eustachian orifices are the only rough surfaces to be encountered in this examination. Medical treatment is of no avail, until after the removal of these growths, and then only as a means to improve the general health. Some operators advocate the removal of adenoids without an anesthetic. I do not agree with them, except in the case of adults. In children the rigidity of the parts together with the fright and struggles of the child renders it impossible to do the operation with the precision and thoroughness with which it should be done. Then again, other parts of the throat and naso-pharynx might be injured by sudden movements on the part of the child. The nearness of the blood vessels

on the lateral walls of the pharynx makes it possible that they may be injured in a struggle, and serious hemorrhage result.

All these troubles and pain can be obviated by an anesthetic, and yet, the question of an anesthetic is of serious importance; one that is yet to a degree unsettled by prominent rhinologists, and laryngologists. Accidents are reported from all anesthetics; from chloroform, ether and others. I must say that I am always somewhat apprehensive whenever I use an anesthetic for the removal of adenoids, as I have had alarming experiences on several occasions, notwithstanding the anesthetic was administered by an expert, and the heart and lungs seemingly were normal. The inability to get sufficient oxygen, owing to the growths in the vault preventing free breathing, is the reason anesthetics act so badly at times, during this operation. Ether is the safest for prolonged anesthesia, but it should not be given when there is any bronchial inflammation. I have done the operation on several occasions, with the patient under nitrous oxide gas. This anesthetic is not good where the growths are tough and fibrous, and require more than a few minutes to remove them. Bromide of ethyl is recommended by several prominent rhinologists, but I have had no experience with it. The method of operating for the removal of adenoids differs somewhat with different operators; some prefer to remove them with the finger nail, others with a metal finger curette. The usual method, and the one to give the best results, is to remove them with forceps and curette. If done properly these growths can be thoroughly removed with these instruments in a very few minutes, after anesthesia is obtained.

Before operating, the patient's nose and naso-pharynx should be thoroughly washed out with an antiseptic wash, or a better plan is to have these parts sprayed two or three times daily, for several days with some alkaline solution; normal salt would be as good as any. I do not think it possible to render the pharynx or nostrils aseptic. The wash is to keep the parts as clean as possible. A good plan is to wrap the finger with a piece of gauze, saturate in a solution of bichloride of mercury, one to 5,000, and swab out the vault, just before operating. The patient should be placed on his side, with head to side, or he should be placed on his back with a hard pillow under his shoulders; this will throw the head back and prevent the blood from entering the larynx. The mouth gag should be placed on the most convenient

side for the operator. In placing the mouth gag, care should be taken that it fits over the teeth and that the side of the tongue or cheek is not caught between the teeth and gag. If the growths are not very fibrous, incomplete anesthesia will be sufficient for their removal. If they are very tough and fibrous, deeper anesthesia will be necessary. Where the vault is not too small to permit, the finger should be inserted in the vault, the growths located and then removed with the forceps. One who has operated frequently can tell by the feel of the forceps when he grasps one of these growths. By the sense of touch, the knowledge of the anatomy of the parts, and with a properly made forceps, one is not likely to injure the vault, by removing the adenoids, without first locating them with the finger.

The forceps should be introduced about three times, once on each side, then in the center. The remaining portions, if any, should be removed by means of the curette. Care must be taken not to injure the Eustachian orifices. Sometimes some of these growths lie in the posterior nares, and can only be removed by means of a ring knife, or nasal forceps, introduced through the nose, and the hypertrophied tissue assisted into the forceps, with the fore finger inserted in the vault. This latter precaution I find necessary, for unless these growths are removed from the posterior nares, the mouth breathing will continue. The after treatment consists in putting the child to bed for 24 or 48 hours. Some simple nasal wash may be used, but unless there should be fever it is not necessary. Usually in a day or so the child is well enough to go about. There is one precaution I have found quite necessary, that is, to instruct the nurse or those looking after the child, to inspect the pharyngeal wall every few hours for at least 24 hours after the operation, to see if there is any hemorrhage. I had one case where there was quite a hemorrhage which flowed down the throat; the child kept swallowing it. He became quite weak and exhausted. I was sent for because of his weakened condition and discovered the hemorrhage of which his parents were unaware. It was easily controlled by packing the vault for a few hours.

Faucial tonsils.—These organs are covered, if we may use this expression, with orifices which lead into crypts or blind pouches. These are lined with squamous epithelium. Just what use they are is not positively known. Some theories are that they are

reservoirs for the phagocytes which find their way into them by diapedesis from the lymph follicles of the tonsils and exercise protection by destroying the various micro-organisms introduced into the mouth by food and air. Again, that they are for the purpose of receiving the saliva which the tonsils absorb. These crypts contain numerous micro-organisms of different kinds. The mouth is frequently the agent through which these germs are carried to the tonsils, the mouth receiving them from the food, water and air. These may be pathogenic or non-pathogenic. The crypts seem to be reservoirs for phagocytes, and in a measure destroy many of them. Some of them are not destroyed, and they, together with the decomposing matter, composed of loosened epithelium, fat molecules, lymph corpuscles and other material, furnish an excellent soil for the growth of the various bacteria, that have gained entrance there. When the mucous membrane is in a perfectly healthy condition, it resists the attack of these disease germs. This accounts for the fact that, although present, these germs do not produce disease. Should the tissues lose their resisting power, from injury or disease, then these pathogenic germs produce their specific effects, and cause local or systemic infection. The local affection may be acute or chronic.

The acute form causes symptoms that, as a rule, point to the throat and tonsils as being affected. It is of the chronic form that I wish to speak. In this form a low grade of inflammation exists which at times may become acute. The tonsil is not always enlarged, it may remain unchanged in size, be smaller, or recede below the faucial pillars, by the faucial space becoming enlarged. The crypts in this form are usually filled with decomposing matter, cheesy in character and full of bacteria. The leptothrix grows abundantly on this kind of tonsil. It sprouts from out the crypts and from the tonsillar tissue, sometimes from the faucial pillars and sides of the tongue. It appears as small, yellowish white specks which cannot be easily removed. This condition is sometimes mistaken for follicular tonsillitis. The absence of fever and other clinical symptoms will determine the difference. A patient of mine was treated for a couple of weeks in Boston for follicular tonsillitis. On his return to this city he came to see me. He had a typical case of leptothrix, covering both tonsils, faucial pillars and sides of tongue. The gradual absorption into the system of this infectious material, contained in a chronically dis-

eased tonsil, affects the health and is the cause of various symptoms, such as stomach troubles, coated tongue, foul breath, debility, loss of appetite, anemia, cough, cervical adenitis, etc. There will be some pain and soreness, but not always.

Reflex phenomena are frequently present, due to the intimate relation of the fifth cranial nerve, through the submaxillary, otic, ciliary and sphenopalatine ganglia, with other cranial nerves, and also with the sympathetic. These diseased tonsils act as a *nidus* for the reception and development of the various disease germs, and thereby cause the clinical manifestation of their specific infection. This may occur singly or combined; the latter condition is familiarly known as mixed infection. At times there occurs a form of tonsillitis which cannot be differentiated from diphtheria, without a bacteriological examination; the pseudomembranes resembling diphtheria even to producing glandular enlargements, albuminuria and even paralysis, according to Massei. I am of the opinion that a true tonsillitis, free from the Klebs-Loeffler bacilli, will not produce such clinical manifestations. A familiar type of mixed infection is found in diphtheria; the Klebs-Loeffler bacilli and the streptococci being present.

This kind of tonsil may be tubercular. Kurchman in his examinations estimated that 60 per cent. of the tonsils in cases of pulmonary tuberculosis were tubercular. He also found many cases of tubercular tonsils in which the lesion was primary. This form of chronic tonsillitis often results in hypertrophy. As a rule both tonsils are affected, but sometimes only one. These diseased tonsils, full of bacteria, and exerting their influence over the system, are frequently found in the stumps of those that have been amputated with a tonsillotome. The top only of the tonsil has been removed, leaving a part behind, which is usually below the pillars. After a time it becomes diseased, causing systemic and local infection. This stump has, eventually, to be removed, thus necessitating two operations, when one should have been sufficient, if all the tonsil had been removed at the first operation. I have just had a number of young ladies, all from the same seminary, who had chronically diseased tonsils upon which was growing very luxuriantly, the leptothrix. The systemic infection was pronounced. All were anemic, languid, unable to study, with headache, sore throat, indigestion, foul breath, coated tongue. Pressure on the tonsil would cause a cheesy matter to exude,

which had quite an offensive odor. The question naturally arises, is this form of tonsillar disease contagious, and did these young ladies contract it one from the other? Many species of bacteria are found in the tonsillar crypts, and it is difficult to demonstrate the specific one that causes the local pathological condition. This is true from the fact that we are unable to acquire a knowledge of the properties of many of them, because of the inability to study them from cultures, as they do not grow upon any artificial medium.

Treatment.—There are two kinds of tonsils that should be treated; the hypertrophied, and those having a chronically diseased condition of the crypts, whether the tonsils be large and protrude beyond the pillars, or small, and lie beneath them. I think that next in frequency to hypertrophied tonsils are those having a chronic inflammation of their crypts. Some think that a tonsil needs no treatment unless it is enlarged and projects beyond the pillars. This is erroneous, as the treatment is not always confined to the hypertrophic variety, but very frequently to the diseased tonsil, whether large or small. This diseased tissue should be removed and the crypts thoroughly cleansed of all diseased matter. This is best done with punch forceps made for the purpose, and by the galvano-cautery. The anterior pillars must be drawn aside so that none of the diseased crypts in that locality escape a thorough cleansing. The posterior portion of the tonsil must also be inspected, for it is there that it is frequently diseased. If there is not a great deal of diseased tissue, it should be thoroughly removed. If the tonsil is pretty thoroughly diseased, the whole tonsil should be enucleated. I have obtained the best results in relieving the local and systemic infection, from diseased tonsils, by completely removing them.

This is best done with a tonsillotome or snare. I have no use for the bistoury or scissors, and do not think they should be used when we have so many better instruments for that purpose. I have discarded the tonsillotome almost entirely, and use the cold wire snare. I find this a much more perfect method. It is less liable to cause hemorrhage than the tonsillotome. The excessive hemorrhages, except in cases of hemophilia, are caused when the tonsils are fibrous; the walls of the blood vessels also become of a fibrous character, and when cut do not contract—on the contrary,

gape—and thereby allow the hemorrhage to occur. The wire of the snare passes underneath and encircles the tonsil at its attachment to the wall of the pharynx. There being little, if any fibrous tissue at its attachment, the vessels readily contract and no hemorrhage of any consequence occurs. This applies to both adult and child. In removing a tonsil from an adult, I always feel safer in doing so with this instrument, for we know that the danger of hemorrhage increases as the age of the patient advances, after 14 or 15 years of age.

Whenever practicable, I prefer to remove tonsils without an anesthetic. It can be done with this instrument very quickly. A little cocaine swabbed over and behind the pillars will reduce the pain to almost none. Another advantage is that the snare can be more easily adjusted, and does not interfere with our vision in adjusting it properly. When the child is under an anesthetic, and the faucial space small, a tonsillotome obscures the vision. The tongue also interferes very much in adjusting the latter instrument. A small mouth adds to our troubles. It is a pleasure to use an instrument that to a great extent obviates all this, as does the snare. It can be adjusted when the child is struggling and quite unruly. As long as we can keep the mouth open, it can be adjusted. In cases of adherent pillars, they must be loosened from their attachment to the tonsil, before attempting to remove the latter. This snare can be used with one hand, and completely enucleates the tonsil. The wire passes under the tonsil, like the enucleation scissors pass beneath the eye, and removes the entire organ. The two operations are somewhat similar. There is only one objection to the snare, and that is easily remedied. There is nothing to hold the tonsil after being enucleated, as I found out at my first operation with it; the child swallowed the tonsil. The tonsil was removed and was swallowed almost simultaneously and done so quickly that I thought the wire had broken; it went through the tissues so easily. I now use a pair of forceps to hold and if necessary to draw out the tonsil. These forceps are made so that if there should be a vessel that bleeds too freely, they can be used to seize it and locked together until the hemorrhage ceases. When the patient is prone there is no need to use the forceps to hold the tonsil, as after being removed it drops at the side of the pharynx, and is easily removed. It is only in the upright position that there is any

liability of it dropping into the larynx, and that I think not likely to occur, and will never occur if the forceps are used.

Lingual tonsil.—This tonsil, situated at the base of the tongue, is a mass of lymphoid tissue, from one-eighth to one-quarter inch in thickness. It is irregular in form, though always somewhat flat. It is located behind the circumvallate papillae. It contains crypts often so small that they cannot be seen. In its normal condition, it should not encroach upon the epiglottis, there should be a free space between them. It presents upon examination many conditions pathologically, as do the faucial tonsils, and, like them, causes many annoyances, discomforts and reflex conditions to the patient. Obscure symptoms are frequently traced to this tonsil as the cause; these may be cough, paroxysmal or otherwise, desire to clear the throat, spitting blood or quite a free hemorrhage, which alarms the patient, his family and friends. A full feeling in the throat, a constant desire to swallow, a sensation as if there was something in the throat, a sense of suffocation, a fear of strangulation. There is sometimes pain and aching in the throat, also a feeling as if there was some part of the throat caught in some manner, producing in some cases quite a severe cramp of the muscles, causing pain and alarm. Some only of these symptoms may be present, and it is seldom that all of them are. There are usually only a few present, but sufficiently pronounced to cause the person to seek relief from the physician. This tonsil should be inspected in all examinations of the throat. With good illumination and the tongue held out of the mouth by the physician, with a napkin, by means of the throat mirror, the base of the tongue is easily examined.

The tonsil may be swollen and enlarged, corrugated, resembling a cauliflower in appearance. Large and tortuous veins may be found coursing over its surface or grouped closely together, forming a varicose condition. There is usually contact between the tonsil and epiglottis and this often accounts for the majority of the symptoms complained of. Much could be written about this tonsil and the various symptoms which arise from a diseased condition of it, but it seems unnecessary to do so, as sufficient is known about it to make a careful examination of it in all throat cases coming for treatment. The treatment consists in removing these hypertrophies with cautery or snare. Cutting

operations, as in case of faucial tonsils, should be done with caution, as severe hemorrhage is liable to occur. They should never be cut until after the blood vessels that course over them are thoroughly destroyed by the cautery. Unlike enlarged pharyngeal tonsils or the faucial tonsils, this tonsil is found only exceptionally in children. They are mostly found in adults and frequently in those suffering from constipation, rheumatism or menstrual disorders. As the danger from hemorrhage is greater in adults when the faucial tonsils are removed, so is the danger from removing the lingual tonsil with cutting instruments; for this operation is almost always performed on adults. Each case must be treated according to the conditions found at time of examination.

Local treatment may help some cases where there is only slight hypertrophy and no contact of surfaces exists. Iodine or nitrate of silver, trichloroacetic acid and chromic acid may be tried locally. My own experience has been that they must be removed or smoothed down by means of the cautery, taking care not to cauterize too extensively, for fear of having too much scar tissue. This might augment the trouble instead of relieving it. As an example of one of the many phases of this disease for which we are consulted for relief, I cite the following: Mrs. B., married, 35 years of age, came to see me a few days ago. She was suffering with considerable pain in her throat, "it felt as if there was something growing in it," she said; "there were times that something seemed to catch in it;" she looked at her throat in the mirror and discovered what appeared to her to be a growth. She consulted her physician in the town she came from, who told her that she had a growth and it must be removed at once. Upon inspecting her throat I found an enlarged lingual tonsil, over which coursed large veins. The epiglottis was embedded in the hypertrophied tissue, and at every movement of the tongue, the two surfaces rubbed against each other. I explained this to her, but she said, "there was a growth lower down," that she "not only felt it, but had seen it." I gave her a hand mirror and asked her to show it to me, whereupon she pointed to the rim of the epiglottis, which could be distinctly seen. The symptoms caused by the lingual tonsil made her think she had a growth, and when she saw the rim of the epiglottis, was sure of it.

Dr. Wells said that the paper was very instructive, as it considered the tonsils together, and not separately, as was usually the case. They had a similar physiology, pathology and analogous diseases, and it was profitable to study them together. The question when to remove the tonsil frequently came up for decision. It should not be removed when it was merely enlarged. The tonsils had some function, although at present unknown. We should be guided by positive indications, which should be carefully considered in each case before we recommended operation. The size of the tonsil might be a cause for removal, but it was the least of all. A slight hypertrophy did not necessitate removal unless, as in case of the pharyngeal tonsil, it was liable to cause constitutional disturbance from interference with nasal respiration. Here, the size and location had to be taken into consideration. The symptoms must guide us in case of the other tonsils; *e. g.*, in the lingual, interference with the voice, cough, dysphagia, etc. A frequently recurring inflammation of a tonsil was another indication for excision, particularly if it appeared in the form of a peritonsillar abscess.

Another point, which had lately assumed importance on account of its relation to internal medicine, was the fact that the tonsils were undoubtedly the point of entrance to the system of the germs of certain diseases, pericarditis, septic endocarditis, influenza, rheumatism, etc. This was not a mere fanciful hypothesis, it had received clinical demonstration. It had been noted in cases of rheumatism, for example, that recurrent attacks had ceased after the removal of the tonsils. Cervical adenitis was an indication for removal of the tonsils, particularly if they were enlarged or diseased. They had been shown to frequently harbor tubercular germs; the bacilli might remain latent, but under certain favoring conditions entered the system, giving rise to enlargement of the glands. Hodgkins disease often began with a hypertrophy of the tonsils; cervical adenitis was also a feature in this disease. This was certainly sufficiently suggestive and made us wonder whether the tonsils did not furnish a point of entrance. These things must be considered before advising excision of the tonsils. Mere hypertrophy, without symptoms, did not necessarily indicate removal.

It had been said that in a child the tonsils should be on a level with the pillars of the fauces, but this was not so in adult life. The tendency of the tonsil to sink in "submerged tonsil" made necessary a careful examination. After the question of removal had been decided in the affirmative, excision should be thorough, whatever the method employed. In removing faucial tonsils he used the tonsillotome, but sometimes used also the electric cautery or punch in order to thoroughly remove all the tissue. Adenoids should be removed under an anesthetic, as the operation could be more thoroughly and satisfactorily done in that way. If

all the tissue was removed there was very little likelihood of recurrence. The trouble with recurrent cases was that all the growth was not removed in the first instance. He used the curette and forceps, and then, with gauze around the finger, rubbed thoroughly the vault around the eustachian tube to clear away the remaining shreds of tissue.

Dr. Butler said that the subject was interesting to the general practitioner also, as he usually saw the patient first. He did not agree with Dr. Dufour as to the importance of the lingual tonsil; it was often overestimated. Even when enlarged the lingual tonsil often gave no symptoms whatever; the symptoms presented were frequently due to other causes, and it was not necessary to treat the case surgically until other causal conditions had been removed.

When to remove adenoids depended on the symptoms which they caused. Once he removed them from a baby six months old because it could not breathe properly during nursing. It was not necessary to scrape the vault when there were no symptoms; treat the disease locally. After emphasizing the evil consequences which resulted from neglect to treat these cases properly, Dr. Butler spoke of the method of operating. Whether or not to use a general anesthetic depended on the patient; some would submit to an operation under cocaine, while others, of a nervous temperament, would not. In some cases the growth certainly did recur. In one of his patients it came back several times after operation; why, he did not know. He related Browne's case in which the diagnosis was made a difficult matter by the fact that the adenoids enlarged or at other times entirely disappeared according to climatological conditions. Certain it was, however, that when operation was performed at all it should be done thoroughly.

Dr. McKimmie said that he was much interested in the paper and discussion. He was glad to hear Dr. Butler say that it was not necessary to remove adenoids in every case. Dr. McKimmie had seen cases where operation did no good whatever. He had found adenoids by examination which gave no symptoms, either at that time or subsequently. Hence he did not operate in every case merely because adenoids were present. The method was immaterial. He operated with the patient on the side or back, because he got into this habit. Others used the erect position to good advantage. The matter of instruments was also one of personal preference. His experience, however, had led him to believe that the curette did not remove all the tissue, and hence there was a liability to recurrence. A small forceps, with the finger, would remove every speck. The curette could be used afterward, if necessary.

In many cases the lingual tonsil was removed without just cause. Hypertrophy, when present, often gave no symptoms. In other cases it caused cough, dysphonia, etc., and operation

was required. The question of operation, therefore, must be decided according to the degree of symptoms present in each case. The same remarks applied also to the faucial tonsil. Here again the instrument used was a matter of personal preference. He preferred the tonsillotome if removal was done because of obstruction. If there was much diseased tissue he used the punch or scissors. It did not appear to him that removal could very easily be accomplished by the snare, because of difficulty in engaging the instrument. There was no way to guard against an occasional hemorrhage. Fatal hemorrhages were very rare, but several serious ones had been reported during the last year. Whatever the size of the tonsils, recurrent attacks of soreness, enlarged cervical glands and other sequelae required radical treatment. In conclusion, Dr. McKimmie emphasized the fact that the crypts, when diseased, formed good culture grounds for pathological organisms.

Dr. R. S. Lamb advocated removal of the tonsil with the bistoury. The tonsil was embedded in connective tissue and the blood vessels of the latter were very collapsible, hence when removal was completely done hemorrhage was practically *nil*. This could be accomplished by the use of first a sharp-pointed and then a blunt bistoury, the dissection going outside the fibrous areas. Either the tonsillotome or punch might enter an area of sclerosis, and cause severe hemorrhage from a gaping vessel. According to his experience, recurrence was not uncommon after the tonsillotome had been used. He favored complete removal of the faucial tonsil by dissection. He had never seen the pharyngeal or lingual tonsil entirely removed, except by accident. The cautery caused an unnecessary reaction.

Dr. Battle suggested that the tonsils were placed by nature at the entrance to the throat to act in some way as a protection to the system. He believed that they had a definite function.

Dr. Wilkinson agreed with Dr. McKimmie as to operation. The method, instruments, etc., must be decided on in each case individually. Any tonsil which was subject to repeated attacks of inflammation should be removed. He agreed with Dr. Butler as to the use of anesthetics in adenoid operations. Dr. Wilkinson often performed them under cocaine in his office. He used the forceps, curette, and lastly the finger. The operation was so quickly done that a general anesthetic was hardly necessary. He had not been troubled by recurrence of the growths. He had not found the snare as easy of employment as Dr. Dufour had suggested. Dr. Wilkinson withdrew an embedded tonsil with the forceps, and then excised it with the tonsillotome.

Dr. Dye spoke with reference to the use of anesthetics in adenoid operations. The operator was generally at the mercy of the child in these operations. Inasmuch as a general anesthetic added practically no danger, and the operation only took from three to

five minutes, he saw no valid reason why such an anesthetic should not be used. It was an advantage both to the physician and patient.

Dr. S. S. Adams advocated the early removal of adenoids. He was one of the first here to recognize the condition and advise removal of the growths. Hooper, of Boston, first wrote on the subject. Dr. Adams now sees a number of cases each month. They were usually patients who had gone from physician to physician without benefit, not having received radical treatment. He related the case of a school girl who was treated locally for adenoids for two years by a physician. She then came to him. He found the vault filled with the growth. He had it removed, and the girl was out again in three or four days. All the symptoms disappeared. Another condition, dependent on the presence of adenoids, and which he had recently seen, was cyclic vomiting. Every two or three months for years the child had had attacks of vomiting which lasted four or five days until the patient was nearly exhausted. She was operated on in the autumn, and had not had an attack since. He knew of three other cases in which the patients were cured in the same way.

One could operate, or merely pretend to operate. There had been no recurrence in his cases, when removal was thorough. Recurrence was the rule, however, when the growth was not thoroughly removed. There was a certain amount of danger connected with anesthesia, unless the anesthetic was properly given. The patient must be properly prepared beforehand. There was a tendency to be a little lax in this matter. One should follow the usual rules, have the stomach and bowels empty, etc. He knew of a recent instance in which a child was nearly killed from failure to observe these precautions. It vomited during anesthesia, and a piece of meat nearly caused suffocation. Properly given, however, anesthesia played no important part. The posture depended largely on the convenience of the operator.

As regarded tonsillotomy, the laryngologist did not remove the healthy tonsil, he excised the diseased portion just as in other operations. When a hypertrophied tonsil gave symptoms, the sooner the hypertrophied portion was removed the better. He agreed that removal should be done early; if the physician was certain that adenoids were present, he should not wait for symptoms of obstruction, facial changes, earache, etc., but he should remove the growth at once, as the patient never was any better for local treatment. Removal by the tonsillotome was better than slower methods. He related a case in which a laryngologist took six weeks to remove a tonsil, the family in the meantime living at a hotel. Dr. Adams removed the other tonsils in six minutes with the tonsillotome in two younger children in the same family. Here he used cocaine locally.

Dr. J. Preston Miller emphasized a rule which he had never

known to fail: children having adenoids, habitually had croup with a cold. In some cases it was true croup, in others the false variety. He referred to a case of his, intubated by Dr. Richardson, in which adenoids were found, and afterward removed. When Dr. Miller found the tonsils hypertrophied and giving symptoms, he removed them radically, leaving no part of the tonsil behind. As a result, he had had no case of recurrence. He had found the use of the snare accompanied with some difficulty. He used the tonsillotome, and serrated scissors, if necessary. This method caused no scars; but when the cautery was used, scars were left which might subsequently give trouble.

Dr. R. S. Lamb commended the administration of beef extract before operation as being superior to milk and bread. The former was not vomited, and was easily assimilated.

Dr. C. W. Richardson said that the matter of recurrence always deserved careful consideration, and the physician should be cautious in answering questions concerning it. He himself never promised that the adenoids would not recur. The reason for this was based on pathology. Ten per cent. of adenoid growths contained giant cells or evidence of a tubercular nature; a certain number of cases depended on syphilis in the parents. These were the cases that recurred. They did so in his practice, and in that of all operators. It was not due to partial removal, but to a great tendency to lymphatism. In one case he did a most thorough and cautious adenoid operation for a friend, and the result was apparently perfect; yet there was subsequently recurrence, and the patient was sent back to him. There was no way to prevent recurrence in these cases. Today he saw a child whose father was a syphilitic; there were three children, and each had been operated on for adenoids two or three times by a skilful physician. This was the usual history. But in cases other than these there was not apt to be recurrence, if the operation was thoroughly done. It could be prevented in many cases by giving the child an antisyphilitic or antitubercular treatment after operation, and following it up. The etiological relation between adenoids and deformed septum was important. The deflection was caused largely by the change in the dome of the hard palate, and the drawing in of the alveolar border of the upper jaw. It might not occur until long after removal of the adenoids. In one of his cases the septum was normal at the time of operation, four years ago; now there was a marked deflection. He always made it a point to examine the nasal cavities in adenoid cases.

The method of operating was a matter of personal preference. He early began to use the erect posture for children, and could not see why it was not preferable in every way. For adults the Trendelenburg position was the best. He had operated with patients in all positions. Chloroform should not be used, of course, in the erect position. The importance of hypertrophy of the

lingual tonsil had been much exaggerated; there was a great deal of fadism about it. The symptoms occurred in patients of one of two types—the hysterical patient or the pre-tubercular patient. They were most frequently observed in women. Many patients of the pre-tubercular type returned subsequently for treatment for tuberculosis. The hysterical patients could be cured by a decided mental impression. He mentioned the case of a woman who had “a tumor of the throat,” which gave all of the usual symptoms—fulness, dysphagia, cachexia, etc. In examining her he touched the epiglottis, and she said that that was the tumor. He explained matters and the women went home well. How firmly the tongue was drawn out determined in some cases how much the lingual tonsil was “hypertrophied.” He saw very few instances of true hypertrophy.

Dr. Dufour, in closing the discussion, emphasized the fact that mere hypertrophy without symptoms did not indicate removal of the tonsil. Only the diseased tonsil should be excised. If it was very much affected, it was best to remove it *in toto*. He did not agree entirely with Dr. Richardson as to hypertrophy of the lingual tonsil. His own experience had been to the contrary, as was also that of many prominent laryngologists throughout the country. One of them had devised an instrument for the removal of these hypertrophies, and it was used by many other laryngologists with complete success.

While the cautery had undoubtedly been used too much, patients had been cured by this agency and the lingual tonsillo-tome. The subject of the recurrence of adenoids had been well covered by Dr. Richardson. It was most frequent where there was a scrofulous taint or the growth had not been thoroughly removed. Dr. Dufour recounted the advantages of the snare, but thought that the choice of instruments was a matter of personal preference.

CASE OF GENERAL CANCER.*

By N. D. GRAHAM, A. B., M. D.,

Washington, D. C.

The patient from whom this specimen was obtained post mortem came under my care at the Freedmen's Hospital last winter.

The history of the case is as follows: J. E., colored man, aged 55, driver, was admitted to the medical ward January 25, 1904, complaining of “dropsy.” Mother died of “dropsy.” Family history otherwise negative. Patient had had the diseases of childhood; also gonorrhoea 20 years ago. Had swelling of feet occa-

*Reported with specimen to the Medical Society of the District of Columbia, April 27, 1904.

sionally, but not to a degree that interfered with his work. Has been a hard drinker since ten years old, chiefly of gin and whisky.

About December 10, 1903, he had a bloody diarrhoea, pain in back, frequent urination, swelling of feet and legs, and "indigestion" indicated by fetid breath and sour taste. Appetite unimpaired.

On admission he was found to be a moderately well nourished man, skin and conjunctiva slightly jaundiced, tongue coated, apex beat displaced one inch to left of nipple line, abdomen distended, feet and legs swollen. Pulse weak, compressible and rapid. Blood vessels showed a moderate degree of arterio-sclerosis. Liver smooth and tender to touch; abdomen distended by fluid; increased cardiac dullness; liver dullness extended from fourth intercostal space to within an inch of umbilicus. Soft blowing systolic murmur heard over apex and bubbling rales throughout both lungs. Urine showed a small amount of albumen and a few granular and hyaline casts.

A diagnosis of dilatation of heart and hypertrophic cirrhosis of liver was made. No differentiation between the fatty, alcoholic liver and Hanot's cirrhosis was attempted.

He remained in the hospital until his death, February 19, 1904, 25 days after admission. During this time he was conscious and apparently entirely comfortable. The average temperature was 97°, pulse 72, and respiration 20. He slept well and seemed to enjoy his food, but became progressively weaker and more emaciated—jaundice becoming more and more marked. He was given the Niemeyer's pill for a few days, after which the treatment was simply tonic.

Aside from the specimen itself, the interest of the case lies in the difficulty in diagnosis. The symptoms could be interpreted as pointing to fatty alcoholic cirrhosis, Hanot's cirrhosis, or carcinoma, and the final diagnosis may possibly prove it to be one of those rare cases of cancer with cirrhosis. Microscopical examination not completed.

The necroscopy was made by Dr. D. S. Lamb. Body emaciated; jaundice; feet and hands large; head, neck and spine not examined. Lungs oedematous and showed many small, flat, peripheral nodules, probably cancerous. Heart normal. Abdomen contained serum. Liver weighed 7 pounds 10 ounces, stained with bile and studded with cancer nodules; gall bladder distended with dark bile

and bent at a sharp angle. Head of pancreas cancerous, obstructing the common bile duct. Spleen small. Small nodules of cancer on peritoneum near liver. Stomach, intestines and kidneys normal. Prostate not enlarged. Anatomical diagnosis; primary cancer of pancreas; secondary cancer of liver and lungs.

In Memoriam.

DR. WILLIAM H. HAWKES.

[Resolution Adopted April 13, 1904.]

The Medical Society of the District of Columbia learns, with deep sorrow, of the death of one of its most valued members, DR. WILLIAM H. HAWKES, who departed this life in the City of Washington on the 13th day of March, 1904.

Learned in his profession, he won the admiration of his colleagues, who appreciated his wisdom and benefitted by his opinions. Kindly and genial in his nature, he won the love and esteem of all who knew him, whatever their walk in life. As medical officer in several corporations, he was held in high regard; and, as a citizen, he was interested in all enterprises that tended to advance the welfare of the National Capital.

Mourned, then, by the community at large as physician, friend, official and citizen, his death is a distinct loss to this Society, which deplores his sudden and untimely demise, pays tribute to his memory and extends sympathy to the bereaved widow.

H. L. E. JOHNSON,

H. T. HARDING,

F. V. BROOKS,

Committee.

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Wednesday, March 30, 1904.—The President, Dr. Charles W. Richardson, in the chair; 38 members present.

The following candidates for membership by invitation were elected: Dr. J. L. Pleawell, U. S. N.; Dr. L. L. Williams, P. H. and M. H. S.; Dr. John O. Skinner, U. S. A., retired; Dr. Charles Lynch, U. S. A.; Dr. A. N. Stark, U. S. A.

The Editing Committee presented a report relative to a communication from the Kentucky State Medical Association, dated February 29, 1904. The report was accepted and adopted. Dr. D. S. Lamb was elected as delegate to represent the Society, in accordance with the recommendation contained in the report, and Dr. W. A. Wells was appointed alternate.

Dr. C. R. Dufour presented a specimen of *keloid* from the lobule of the ear. Dr. Dufour removed his specimen from the lobule of a young negro woman, at the Eye and Ear Clinic at the Central Dispensary. Like all others he had seen and removed from the ear, it originated from the wound made for wearing an ear ring. She had a small one on her other ear. He had never seen one return after removal, nor become malignant, as some claimed they did.

Dr. C. L. G. Anderson also presented a specimen of *keloid* from the lobule of the ear; it was of an hour-glass shape. The patient was a woman, age 29, who had her ears pierced for rings in 1900; the fibroma began at once to grow and symmetrically. March 9, 1904, Dr. Anderson removed it. The other ear showed a similar growth.

Dr. Vale read the paper of the evening: "The Early Diagnosis of Pott's Disease." Discussed by Drs. Shands and J. Ford Thompson. See page 151.

Wednesday, April 6.—The President, Dr. Charles W. Richardson, in the chair; 50 members present.

The following candidates for active membership were elected: Charles M. Beall, Columbian University, 1900; Taylor Boyd Dixon, Columbian University, 1900; Almer M. Hoadley, Columbian University, 1902; Henry A. May, Columbian University, 1899; John J. Repetti, Georgetown University, 1897; Wm. W. Richardson, University of Pennsylvania, 1902; B. Rosalie Slaughter, Women's Medical College, Pa., 1897; J. C. Tappan, Columbian University, 1899.

The Treasurer reported for March, 1904: Received, assessments, \$8.00. Disbursed, Recording Secretary, stipend, \$50.00; Janitor's fee, \$30.00. Total, \$80.00.

The following candidates for membership by invitation were elected: Drs. W. J. Pettus, A. H. Glennan, J. F. Anderson and Edward Francis, all of the Public Health and Marine-Hospital Service, and Dr. Raymond Spear, U. S. Navy.

The paper of the evening was read by Dr. D. K. Shute, "The Value of a Knowledge of Abnormal Mobility of the Iris as an Aid in Diagnosing Diseases of the Nervous System." Discussed by Drs. Burnett, Clark, Carr, Wilkinson, D. S. Lamb, Wood, Belt and S. S. Adams. See page 162.

Wednesday, April 13.—President, Dr. Charles W. Richardson, in the chair ; 60 members present.

The committee appointed to take action on the death of Dr. William H. Hawkes made report, which was accepted. See page 239.

The resignation of Dr. Anthony Heger from membership in the Society was accepted. A letter from Dr. McLain was read, stating that Dr. Heger had been blind for several years. The Corresponding Secretary was requested to extend to Dr. Heger the sincere sympathy of the Society.

The following cases and specimens were presented :

By Dr. S. S. Adams : Thoraco-abdominopagus. Illustrations.

The mother of this monster was 27 years old ; her first pregnancy was normal. A sister had given birth to triplets and there were several cases of twins in the family. The presentation in this case was R. O. P. The head of one baby was first delivered with forceps ; remainder of body extracted after much trouble by flexing the head against the pubic arch of the mother and at the same time using traction. The second baby was extracted by grasping the feet. No injury to the soft parts of the mother. There was one placenta of moderate size ; one umbilical cord, of course. Partial prolapse of intestines through umbilical opening. The fetal heart-sounds were distinctly heard until a half hour before complete delivery. Weight of monster, 11½ pounds. When four months pregnant, the mother attempted to induce abortion by the use of drugs and heavy lifting. She made a rapid and perfect recovery from the labor. The photographs were sent to Dr. Adams by Dr. Herman B. Sheffield, New York City.

By Dr. D. S. Lamb : Ischiopagus.

Dr. T. N. Vincent read the essay for the month, "The Treatment of Scarlet Fever." Discussed by Drs. S. S. Adams, Claytor, Acker, T. C. Smith, E. L. Morgan, A. F. A. King, Glazebrook, Haslup-Lamb and Kober. See page 189.

Wednesday, April 20.—The President, Dr. Charles W. Richardson, in the chair ; 60 members present.

The President appointed Dr. J. S. Wall a member of the Milk Commission to fill the vacancy caused by the death of Dr. de Schweinitz.

Dr. A. F. A. King said that several members had suggested the advisability of attempting in some way to limit the expense connected with the publication of the ANNALS. The present expense was a heavy drain on the treasury, and if it increased the results would be serious. The idea was not to stop the publication, but to limit the expense connected with it, possibly by condensing the reports of papers so that less space would be required.

He moved that the matter of the length of the papers presented by members to the Editing Committee be considered at this time, in connection with the general desire to limit the expense connected with the publication of the ANNALS.

The Treasurer explained the present depleted state of the treasury, and the undesirable effects of further drains upon it. He believed that this matter could well be referred to the Essay Committee for consideration.

Dr. Glazebrook inquired as to the relative cost of the present publication and the cost of publishing an annual volume of transactions.

Dr. Kober thought that the matter should be referred to the Editing Committee. In his opinion, the best way to secure the desired economy was to condense the reports of long papers. He moved that the subject under consideration be referred to the Editing Committee for consideration and report.

Dr. A. F. A. King accepted Dr. Kober's amendment to his motion.

Dr. Vale thought that it would be a great mistake to take any backward step in connection with the publication of the ANNALS.

Dr. King's motion with Dr. Kober's amendment was carried.

The Editing Committee was authorized to publish 500 copies of the Constitution and By-Laws, including the customary lists of members, the number of pages being limited to 32 if possible.

The following cases and specimens were presented :

By Drs. D. S. Lamb and Hickling : Specimens showing various diseases of the heart. See pages 186, 188.

By Dr. Henry D. Fry : Fibroids of the uterus. See page 207.

The discussion of Dr. Vincent's essay upon "The Treatment of Scarlet Fever" was concluded by Dr. Barnes.

Dr. H. D. Fry read the paper of the evening. Subject : "Some Responsibilities of the Modern Obstetrician." Discussed by Drs. A. F. A. King, Moran, Kober, Reyburn, Chappell, Kleinschmidt, G. Brown Miller and Norman Howard. See page 208.

Wednesday, April 27.—The President, Dr. Charles W. Richardson, in the chair ; 40 members present.

An appropriation of \$137.20 for the publication of the ANNALS was granted.

Dr. N. D. Graham presented a case and specimen : Cancer of the liver. See page 237.

Dr. Dufour read the paper of the evening. Subject : "Hypertrophied Pharyngeal, Faucial and Lingual Tonsils ; their Significance and Treatment." Discussed by Doctors Wells, Butler, McKimmie, R. S. Lamb, Battle, Wilkinson, Dye, S. S. Adams, J. Preston Miller, C. W. Richardson. See page 221.

Medical Miscellany.

DR. MARY DORA SPACKMAN died in this city May 26, 1904. She was born in Maryland December 13, 1839; graduated in medicine at Howard University, Medical Department, in 1872. She applied for a license to practice medicine in this District, but was refused because the law limited the practice to "medical and surgical gentlemen." It became necessary to amend the law and she and Dr. Mary Parsons, who graduated in 1874, went to work and in March, 1875, secured the passage by Congress of an amendment changing the word "gentlemen" to "persons." A meeting of women physicians of this city was held June 15 and appropriate resolutions were adopted.

I. H. LAMB.



WASHINGTON MEDICAL ANNALS

SURGERY IN THE AGED.*

BY WM. A. JACK, JR., M. D.,

Washington, D. C.

The object of this paper is to enter a plea for the more frequent operative treatment of disease in the old and infirm. These patients are often told that they are so old that nothing radical can be done for them, and that they must be satisfied with palliative measures.

The objection most frequently urged against surgery in the aged is inability to survive the shock on account of lack of vitality, damaged heart or kidneys and atheroma of the blood vessels.

If enough care is taken in preparation and in building them up, and the patients are not confined to bed any longer than is absolutely necessary, there will be fewer patients who will be refused operation simply because they are old and somewhat infirm.

The liberal use of whiskey and strychnia for a few days and a stimulating enema two hours before operation will enable us to tide many an old, infirm patient over the critical period incident to surgical interference.

In the following cases an effort is made to show what can be done with unpromising material. The cases are reported somewhat in detail to allow of an opportunity to judge whether operation was justified or not.

Case 1. Mrs. E. W., Irish, age 73. Patient was first seen May 16, 1902. She said she had noticed a lump in her left breast for about six months, and that she had been told she had a cancer, but was too old for operation. Examination showed a small emaciated woman with atheromatous arteries. There was a hard, nodular, ulcerated mass two inches by three inches in the left breast, axillary glands enlarged, in fact, a typical picture of a

* Read before the Medical Society of the District of Columbia, May 4, 1904.

broken down carcinoma. She was removed to Sibley Hospital, May 20. Urine showed no albumen or casts. Heart and lungs negative. May 21 the radical operation for mammary cancer with excision of both pectorals was done.

The operation presented no special difficulties until the removal of the glands in the axilla, which were adherent to the axillary vein, necessitating excision of three inches of the vein. On account of the large amount of skin that had to be sacrificed it was impossible to close the wound entirely, and an area about three inches by two inches was left to granulate. Her convalescence was stormy, as she was insane for three days, insisting upon getting out of bed, and using very profane language to the nurses. After three days I discovered she was accustomed to chewing snuff, and ordered that she be allowed her usual quantity. In twenty-four hours she was rational and quiet. The entire wound healed in five weeks. She had considerable oedema of the arm for about two months, but finally recovered fairly good use of this member. Recurrence took place in the scar in about one year and she died about eighteen months after the operation.

Some may think that operation in this case was not justifiable, but I think the year's freedom from pain that this patient had was worth the trouble she underwent to have the breast removed, as in the usual course of such a growth she would not have lived more than six months without an operation.

Case 2. Henry D., negro, age 71, entered Freedmen's Hospital in May, 1903. Examination showed an ill-nourished man with atheromatous arteries. Heart and lungs normal. Urine albuminous, containing a few casts. He had a large scrotal hernia on the right side, the ring admitting four fingers with ease. He wished something done, as he had been unable to obtain a truss that would hold the hernia within the abdomen. There was considerable doubt as to the advisability of operation in this case, as his pulse was very weak and his temperature sub-normal. Finally after close questioning I was able to elicit the fact that he had used whiskey to excess for many years, at the rate of about a pint per day. After finding this out the patient was placed on an ounce of whiskey every two hours and immediately he began to pick up, and after three days operation was done on his hernia after the method of Bassini. Union took place by first intention and he left the hospital in three weeks, wearing no truss and very

well satisfied. He died one year later of nephritis, but his hernia was still retained, and when I examined him a few days before death the canal was perfectly tight and it was impossible to insert the tip of the finger into it.

Case 3. George M., negro, age 74. Ill nourished man with atheromatous arteries and mitral insufficiency, which, however, was well compensated. He entered Freedmen's Hospital in April, 1903, for the purpose of having a double castration done for sarcoma of the testicles. On examination, in addition to the growth in the testicles, it was found he had a double inguinal hernia. He was prepared for operation, and under ether anesthesia both testicles were removed, together with the spermatic cords down to the bladder. The treatment of the hernia was of course easy, the abdominal wall being sutured in layers as in median abdominal section, there being no cord for which to make a canal.

His condition after the operation was grave. Shock was pronounced, necessitating the injection of salt solution and use of stimulating enemas and strychnia. For seven days after the operation, his temperature was sub-normal and his pulse from 80 to 100, and very weak. Finally, after one week, under the liberal use of whiskey and strychnia, together with a generous diet, he began to pick up and made a good recovery, both wounds healing by first intention. He had great oedema of the foreskin about a week after the operation, necessitating circumcision, which was done under cocaine anesthesia. His recovery was complete in two weeks, but he was so well pleased to be waited upon that it was very difficult to keep him out of bed, as he had a new pain every day. Finally, he was discharged after six weeks, in very much better condition than when he entered.

Case 4. J. T., negro, age 76, entered Freedmen's Hospital in June, 1901. He had a discharging sinus over the outer aspect of the right thigh, which he stated had been running for fifteen years. Bare bone could be felt about half an inch below the surface. He stated that at varying intervals small pieces of bone were discharged. A diagnosis of osteomyelitis with sequestrum was made. Operation revealed an involucrum half an inch thick and of ivory hardness. It was necessary to chisel a gutter through the hard bone six inches by a half inch in order to extract a sequestrum, the pieces of which measured seven inches by three-

quarters by one-quarter inch. The cavity filled up, and he left the hospital in four weeks with a good, sound leg.

Case 5. A. G. S., negro, age 70, entered Freedmen's Hospital, August 12, 1903, for the purpose of having his right leg amputated above the knee. He gave a history of osteomyelitis of fifty-five years' standing following a knife wound when he was fifteen years old. Examination showed a fairly well nourished man with atheromatous arteries. Heart and lungs normal. Urine clear, no casts or albumen. The right leg was riddled with sinuses extending from the inner tuberosity of the tibia to the malleolus. He was anxious to save the leg if possible, but was willing to have an amputation done if necessary. After the usual preparation he was etherized and an incision made down to the tibia, all sinuses in the soft parts excised and the bone opened for fully half its length. Nearly all the cancellous tissue of the head of the tibia was scraped out and the cavity stuffed with iodoform gauze. The gauze was renewed every other day, and he left the hospital November 8, 1903, with the cavity entirely filled and the leg in condition to bear his weight without pain.

While these few cases are by no means unique, I think they bear out the assertion that even old persons often have more vitality and their tissues have more recuperative power than we give them credit for.

Dr. Balloch said that the subject was well worthy of discussion. The mere fact that patients were old did not figure in the case; the question was as to their vitality, or vital resistance. The fact that a patient had attained old age, in spite of disease, indicated in itself that he had much vital resistance, and this fact should encourage the surgeon to operate oftener in these cases. The question of anesthesia was often of more importance than the operation. Many of these patients had kidney complications afterward. He had noted this in several cases. His oldest patient was a woman of 78, on whom he performed a radical breast operation; she did as well as a patient of 28. He complimented Dr. Hasbrouck, and said that to his administration of the anesthetic the good result was largely due.

Dr. Abbe mentioned cases in which large operations had been successfully performed under cocaine on patients too old to take a general anesthetic. One case was that of a man 56 years old, who was operated on for cancer of the stomach, a gastro-enterostomy being performed. The patient stood the operation like a soldier, making no complaint. Later, there was non-union of the

edges, and the wound burst open ; it was resutured under cocaine. The second case was that of a woman over 60 years old, who had acute disease of the gall-bladder; cholecystostomy was performed under cocaine, and the woman made no complaint. The value of local anesthesia was not sufficiently recognized. When a patient had the ability to stand pain, much could be done under local anesthesia with but little shock.

Dr. Hasbrouck said that the patient to whom Dr. Balloch had referred was the oldest person to whom he (Dr. Hasbrouck) had given an anesthetic up to that time. Within the last year he had had a dozen patients from 60 to 80 years of age, and in no instance was there trouble from the anesthetic. This spoke well for his method in old persons. It was particularly useful in such cases.

Dr. Jewett mentioned the case of a patient operated on by Dr. Snyder a year ago. The man was 93 years old, and was treated for double inguinal hernia. He took the ether perfectly, and wanted to leave his bed at the end of three days. Dr. Jewett had taken the trouble to substantiate the man's age.

Dr. I. S. Stone said that we were apt to report the favorable cases, forgetting the bad ones. These patients did not always do well later, although they took the anesthetic well. When a patient died suddenly within 48 hours after an operation, it was difficult to say whether the anesthetic was the cause of death or not. He related a case in point. One was apt to have at least one such sudden bad result, especially if he was accustomed to operate indiscriminately among the aged.

Dr. R. S. Lamb said that Dr. Balloch would recall an instance, about six years ago, in which cocaine was used for an abdominal operation, and anesthesia was not complete. Unless much of the anesthetic was used anesthesia was liable to be faulty. The rapid absorption of the drug in similar areas was another disadvantage.

Dr. J. Taber Johnson could recall several aged persons who were allowed to die because they were "too old to undergo an operation." He recalled Dr. Graham's paper on this subject, and stated that he (Dr. Johnson) had operated within a year on six patients between 67 and 74 years old ; all of them had ovarian tumors, and all made good recovery. Soon afterward Dr. Kelly reported 20 operations on patients over 60 years of age, without a death. Another surgeon had reported a successful operation on a man 81 years old. He himself operated on one at 82, but the patient never rallied.

Dr. Jack, in closing, said that he did not wish to advocate indiscriminate operating. He only referred to cases where the patient needed operation and there was hesitation on account of his age. The safety with which an anesthetic could be given depended largely on who administered it ; one man might give it safely, while another would kill the patient in three minutes. The

object in these cases should be to keep the patient barely unconscious. He objected to cocaine on account of the subsequent pain. Infiltration anesthesia offered another means, but here, too, there was as much pain afterward as if no anesthetic had been given. It should be remembered that patients who had been long sick looked older than they really were.

CASE OF CANCER OF THE STOMACH, THE ORGAN
REMOVED EIGHTEEN MONTHS AFTER GASTRO-
ENTEROSTOMY FOR TUMOR PRODUCING STENOSIS
OF PYLORUS.*

By I. S. STONE, M. D.,

Washington, D. C.

W. T., white man, age 48, was first seen by me in June, 1902. He had been ill for at least three months and quite unable to take food without either severe pain or vomiting soon after swallowing. His normal weight was 170 pounds, but now he was reduced to 120 pounds. He was scarcely able to walk alone, and was evidently very weak and on the verge of starvation. His skin was very white, but we could discover no evidence of a cachexia. His bowels were constipated, the amount of food and drink being reduced to almost nothing for fear of the resulting pain and vomiting. There was no pain except after taking nourishment and the area about the stomach was not sensitive to touch. It is worthy of note that he had never vomited blood. When the food passed through the pylorus there was a very definite "boring" sensation which was almost positive proof of the presence of a stenosis, and we were able to prove this at the time of the operation. A growth could easily be detected on a level with the umbilicus, a little to the right of the median line, and about the size of a small orange. This was movable and did not appear to be adherent to the adjoining peritoneal surfaces. Operation was advised, and he entered Garfield Hospital June 10, 1902. His condition demanded speedy work and we proposed to quickly examine the stomach through a median incision and, if possible, make a gastro-enterostomy. All this was possible, and we used a Murphy button with which the jejunum was secured to the anterior wall of the

*Reported with specimen to the Medical Society of the District of Columbia, May 4, 1904.

stomach as the quickest possible method of operating. He was not on the table half an hour, rallied nicely after operation and made a quick recovery, leaving for his home in Virginia in three weeks after his admission.

We found a few enlarged mesenteric glands near the stomach, and while we had no time to search carefully for further complications, we assumed that the patient could not live many months. Much to our surprise, the patient returned to the city in March, 1903, in better condition than when we first saw him. The reporter presented him to the Medical Society, and several members examined to learn if the button had passed. The patient declared that it had not been seen. The tumor at the pylorus had apparently disappeared, and instead of this a mass was present on the right of the median line, fully four inches from the former position of the tumor. The man had gained twenty or more pounds in weight, and was not suffering much, if any, discomfort, yet it was evident that he was not well, and this was soon shown in his decline, which gradually continued until December, 1903, when he died of inanition. Dr. E. J. S. Lupton, of the Columbia Hospital, made the autopsy and secured the accompanying specimen.

The specimen shows the oesophageal opening dilated and cardiac half physiologically thickened. Pyloric half much thickened and indurated by a cancerous growth, the thickness diminishing toward the left and stopping abruptly, as is usual, at the duodenum. Perigastric glands enlarged and cancerous. The anterior wall of the stomach, adjoining the greater curvature, and five inches from the pylorus, shows the opening of the gastro-enterostomy between the jejunum and stomach; the opening is a little over one-fourth inch in diameter and is now included in the extension of the growth. The Murphy button was found lying in the cavity of the stomach as near the pylorus as the narrowed lumen would permit. Extensive adhesions around pyloric end of stomach involving adjoining tissues in a hard, irregular mass. Duodenum normal except that its first part passes above instead of below the gall-bladder; the remaining small and the large intestines normal in position and structure except for adhesions; colon filled with hard feces. Head of pancreas seems normal; a probe passes two inches into pancreatic duct, but only one inch into common bile duct. Body of pancreas enlarged and

shows many cancer nodules. Gallbladder normal except for a pocket in anterior part; was filled with a jelly-like mass. Liver shows cancer nodules and is much bile stained. Retroperitoneal tissues also bile stained.

Dr. Balloch said that Dr. Stone's specimen illustrated the two objections which had been urged against the use of the Murphy button: 1st, that the opening contracted in time, and 2d, the button might drop back into the stomach. Nevertheless the button constituted the best method in cases which required haste and speed.

Dr. Stone said that since the operation reported he had done two suture operations without difficulty, but in one a vicious circle resulted. Throughout the country surgeons were finding a number of cases where old ulcers of the pylorus had produced symptoms which could be relieved by a properly performed gastro-enterostomy. Without the "button" the operation could be completed in thirty minutes, in favorable cases.

CASE OF DERMOID CYST REMOVED BY OPERATION.*

By J. TABER JOHNSON, A. M., M. D., PH. D.,

Washington, D. C.

Mrs. S., white, aged 25, mother of three children, the youngest two months old. I saw her first two weeks ago, when I obtained the following history: The third day after the confinement of an eleven-pound child, she had a chill with a considerable rise of temperature and pulse, and was quite jaundiced for three days; all this condition cleared up under the use of repeated doses of calomel. She made the usual recovery from her confinement, and was up and about in two weeks. The last week in March she had a severe chill, with her temperature rising to 103 and pulse 120, followed by a profuse sweat. For three successive Saturdays these chills, fevers and sweats were repeated with some continued fever in between the chills. When I saw her first, on the 19th of April, I found she had been in bed three weeks; very pale, weak and living exclusively on a liquid diet. She had been treated at first on the diagnosis of malaria, with large and frequently repeated doses of quinine without any benefit. Under further medical advice the diagnosis of typhoid fever was made. To settle the

*Reported with specimen to the Medical Society of the District of Columbia, May 4, 1904.

question a specimen of her blood was sent to a bacteriologist in Baltimore for examination. The report came back : No malarial germs found ; Widal reaction evident ; diagnosis typhoid fever. She had had none of the symptoms on which a clinical diagnosis of typhoid fever is usually made, such as headache, continued fever, delirium, nose bleed, rose colored spots or intestinal gurgling or tenderness. In view of these facts another specimen of blood was sent to Baltimore for examination, and again the report came back, Widal reaction ; diagnosis confirmed ; typhoid fever. Not feeling satisfied, the patient's husband, who is a physician, consulted the old family physician in Washington, who, after learning the history of the case thus far, thought everybody was wrong, and suspected that the patient was suffering from continued puerperal infection, with a strong probability of there being pus somewhere in the pelvis, and requested me to visit the patient, twenty miles in the country, and clear up the diagnosis, if possible, by a gynecological examination.

I found the patient's abdomen absolutely free from any painful or tender spots, and she stated that she had had no pain whatever in her abdomen since the birth of her child. I found, however, that she had all the clinical evidences of a milk-leg on the right side, pain over the vein, heat, great distension down the thigh and calf of the leg. Upon vaginal examination, I found a boggy mass behind the uterus, and, in the absence of any pelvic pain, or present tenderness, I thought there might have occurred a hematocele, which had become infected and undergone decomposition, and which might possibly explain most of her symptoms on the theory of septicemia. The situation was explained, and the day set for an operation, which, in view of her prolonged sickness and anemic condition, I hoped to complete very rapidly, through the vagina. Two days afterward, with the assistance of two doctors and two nurses taken from Washington, I opened the vagina back of the uterus and found an easily movable mass, which I was unable to rupture with my finger, and, owing to its mobility, was afraid to puncture with the scissors, so, after plugging the vagina and the vaginal opening which I had made, with sterile gauze, I opened the abdomen and delivered a dermoid tumor of the ovary about the size of a large orange, which had a partially twisted pedicle, the contents of which had undergone decomposition. On opening the tumor after its removal, it was

found to contain about five ounces of pus, bunches of hair, teeth and plates of bone.

We thought we had removed the source of her trouble, and congratulated ourselves on its successful removal previous to its rupture through an already inflamed and probably ulcerating wall. For five days the patient did unusually well with a temperature ranging between 98 and 99; then she began to have the same chills, fevers and sweats that she had before the operation. The stitches were removed on the ninth day, leaving the wound perfectly healed, without a drop of pus from any of the stitches; no abdominal, vaginal or pelvic tenderness, and the swollen milk-leg rapidly recovering. Her chill on day before yesterday was the longest, her fever the highest and her sweat most profuse.

I saw her again Monday night and examined her carefully, and as thoroughly as I knew how, from her head to her heels, and could find no swollen or tender spot anywhere except about her left kidney, which upon palpation seemed slightly enlarged and very slightly tender. As the clinical history of her case did not seem to point toward typhoid fever, and as the Baltimore blood examinations had been made during the time when she was taking considerable doses of quinine, I thought that malarial organisms might have existed, but were not found on account of the quinine exhibited; we therefore determined on another blood examination; the patient had been free from quinine for the past ten days, and Dr. J. B. Nichols was requested to make a blood count and examine for evidences of typhoid fever, malaria or septicemia. I hold his examination in my hand, which shows "the leucocytes to be apparently approximately normal; Widal reaction negative; malarial parasites not found after long search."

Dr. Nichols' report on the urine examination showed the specific gravity 1007, no albumen, no sugar, no casts; a large number of leucocytes. The chief abnormal points in her case seem to be now the remains of a milk-leg, a few pus cells in the urine, and a slightly enlarged and tender kidney. The exact diagnosis of the case remains undetermined. Dr. Nichols reports that the patient had the best night and the lowest temperature she has had for the past week, and her father reported this evening at 6 o'clock that her temperature had been normal all day, and that she felt very hungry and cheerful, and is sure she will get well.

Dr. Chappell said that he would not attempt to suggest a diagnosis in this case, but it reminded him of one of exstrophy of the bladder which he had reported. The train of symptoms was similar: chills, sweating, malarial organisms in the blood, etc. The patient was already taking quinine, but he increased the dose after the blood examination was made. The patient died two weeks or so later, and autopsy showed that chronic interstitial nephritis was the cause of death.

Dr. I. S. Stone said that the case presented many interesting features. It reminded him of several sorts of infection. Suppurative disease of the kidneys might give such symptoms. But an interesting point here was the presence of slight jaundice. There might also have been a suppurating focus in the upper abdomen; Dr. Johnson thought he had excluded disease of the upper abdomen, but Dr. Stone believed that eventually pus would be found at the bottom of the trouble. The chills added weight to this view. In one such case in his own practice there was cholecystitis, with abscess, ulceration and discharge into the lung.

Dr. Kleinschmidt also believed that the symptoms were due to the presence of a collection of pus.

Dr. G. Brown Miller said that the case was interesting on account of the repeated chills, no evidence of malaria, no leucocytosis, the presence of the Widal reaction and the jaundice. A number of cases had been reported in which there had been an infection of the gall-bladder with the presence of typhoid bacilli and the Widal reaction, and the infection continued for years—seven years in one instance. The pus in the urine would suggest disease of the genito-urinary tract, but the absence of leucocytosis ruled out a suppurating process. Altogether, the case was most interesting. Infection of the gall-bladder or kidney had not been ruled out, unless Dr. Johnson examined these organs at the time of operation. Malaria, also, was not entirely excluded. The milk-leg suggested some infection, possibly embolic.

Dr. Nichols said that he obtained a partial Widal reaction in low dilution, but none in high dilution; hence, following the practice, he made a negative report. Thus there was not a complete discord between the results obtained at Baltimore and his own. He recounted in detail the result of his examination. As to leucocytosis, the leucocytes were sometimes normal in septic cases. The presence of leucocytes in large numbers in the urine suggested the possibility of urinary sepsis. He mentioned a similar case which he had seen last year, in which there were irregular chills, fever, prostration, leucocytosis and anemia. In the urine there was an unusual number of leucocytes, but no obvious deposit of pus. Under the use of urinary antiseptics the patient gradually recovered. He had seen several similar cases of semi-septic fever after labor. He believed that here there might be

present an infection of some part of the urinary tract. He suggested that urotropin might prove of benefit

Dr. Johnson said that the patient was taking urotropin. He would report upon the case at a later date.

EPILEPSY.*

By HENRY J. RHETT, M. D.,

Washington, D. C.

I present this evening a purely nervous disorder, but one which is of so common occurrence and so often comes to the general practitioner that I hope to interest the larger part of this Society.

The very definition of epilepsy is so vague and symptomatic as to at once convict us of much lack of knowledge, and convince us that the true pathogenesis of the disease is yet to be learned.

Epilepsy may be defined as a disease of the nervous system, characterized by sudden convulsive seizures of temporary duration, affecting, at least, some of the muscles of the body in such a way as to produce tonic spasms, which in turn give way to clonic spasms, and are accompanied by at least some degree of unconsciousness in typical attacks.

I do not mean to say that all these conditions must exist in each and every case; one or more of them may be absent and yet the case be a true epilepsy.

Epilepsy easily divides itself into two broad classes (1) Organic, in which *post mortem* lesions can be found: (2) Idiopathic, in which, up to the present time, no reliable or conclusive lesions have been found.

The history of epilepsy is almost as old as that of medicine, and much of it points to the then prevalent idea of its origin being in the sexual apparatus; sequentially castration and oophorectomy were performed with frequency and dispatch.

We are still unable to boast much of our knowledge of this disease, but at least *reckless* surgery has been replaced by a more conservative one directed at the removal of known exciting causes.

Let me briefly describe a typical epileptic attack. The patient will suddenly cease his occupation, look distressed as the *aura* or

* Read before the Medical Society of the District of Columbia, May 13, 1904.

wave sweeps over him, cry out as it reaches the cervical region. The muscles contract, hideous distortions occur in the face, the eyes become unilaterally divergent, and the jaw is clinched.

The face, at first pale (probably due to vaso-motor influences caused by fear), becomes livid as asphyxia of tonic spasm progresses. With this asphyxia we note the staring look and dilated pupils. The tonic spasm rarely remains for more than two minutes, is generally but a few seconds in duration, and is rapidly replaced by clonic spasm. The muscles contract and relax in rapid succession, the body is tossed about, the tongue protruded, the muscles of the jaw gnash the teeth together, increasing the flow of saliva, and catching the protruded tongue, often tinge this saliva with blood. Gradually the spasms become less and less frequent (though the severity may still persist), the asphyxia lessens, healthy color returns to the face and the patient passes into a deep and often comatose sleep.

There is profuse sweating during an attack (probably due to excessive muscular action) and extreme physical and mental exhaustion follow it. Headache, loss of memory and ignorance and disbelief of an attack are usual.

The *aura* or wave varies widely; it may be pain, gastric disturbance, perception of some intense odor, a mere dizziness; or it may be entirely absent. The frequency of its origin may be sequenced as follows: arm, leg, viscera, face, tongue, side. The epileptic cry does not seem to be at all a necessary concomitant; it is absent in many cases and is most frequently found amongst the more emotional nations; possibly it is due to sudden expulsion of air caused by muscular spasm.

Often a ligature passed quickly about an arm or leg above the origin of the *aura* will abort an attack, and some writers have argued the peripheral origin of epilepsy from this fact. I shall say a word about this, under pathology.

Preceding the *aura*, sometimes by hours, sometimes by days, we may have what we may call precursory symptoms. An exaggerated dulness, apathy, loss of memory; an excessive restlessness or activity, violence, troublesome mendacity with slight imperfections of speech; an eagle's eye, an epistaxis, a hyperesthetic skin; any of these in an epileptic should warn us of the approach of an attack and urge us to pour in our medicine.

There are several interesting questions as to some of the symp-

toms of the full attack ; *e. g.*, is the pupillary dilatation due to asphyxia, or nerve impulse ; are the involuntary micturition and defecation due to unconsciousness or muscular action ; how much does the circulatory system suffer ?

Probably more attacks occur in the day than in the night. The worst type of the disease presents both tonic and clonic spasms, a milder form, only the clonic, and the mildest, only the tonic. The sleep which follows an attack is nature's restorative, but at times this is replaced by prolonged coma, which is, of course, a grave condition.

The reflexes after an attack are interesting and important. They point towards paralysis. They are first abolished, and then return in excess, and we have increased knee-jerk, and ankle-clonus.

When the eyes are unilaterally divergent, they roll away from the side of the body which is most affected. The temperature during an attack usually rises.

The urine is *decreased*, the amount of chlorides greater, the amount of phosphates greater during an attack ; the bodily weight is often unaltered. The aphasia which often follows an attack is probably due to exhaustion of grey matter governing the sound-producing muscles.

No marked changes occur in the eye as a resultant of epilepsy. The pupils generally remain sensitive, mobile, equal, regular. Some of the mental changes are fairly constant and many of them profound. Loss of memory is almost a constant factor, incapacity also for prolonged mental effort.

Insanity, idiocy and imbecility occur, the latter two more frequently than the former, and, curiously enough, insanity more often follows *petit mal*. A possible explanation of this is, perhaps, to be found in the element of dread which accompanies the more perfect realization of this form of the disease by the patient. The medico-legal aspect of epilepsy is of much importance and interest.

It can scarcely be doubted that no epileptic is responsible for acts committed during an attack, nor can it well be gainsaid that most epileptics are entirely sane and responsible in the *interim* between attacks.

Insanity, idiocy or imbecility having supervened, settles the question of responsibility, but there is an intermediate class of

patients who present to us a question as to whether a certain criminal act has been the resultant of a homicidal explosion of grey matter, or of some revengeful impulse of real though inadequate cause.

As examples we have the cases of *epilepsia procursiva*.

Many different types of epilepsy have been described.

Thus we hear of :

(1) Psychic epilepsy, in which the attack takes the form of some thought or scene which finally possesses the mind with such force that it seems reality ; this constitutes a hallucination, and criminal acts may well be committed in this state.

(2) Syphilitic epilepsy, which has its onset from 4 months to 20 years after infection (Charcot and others), is apt to be characterized by headache, temporary palsies, slow speech, mental distress, and comes, as a rule, late in life. Indeed, an epilepsy occurring after 30 or 35 years is practically always syphilitic or reflex.

(3) Jacksonian epilepsy, in which the onset, not the *aura*, begins in some peripheral part of the body.

(4) Nocturnal epilepsy, which we are to suspect when we learn of bed-wetting or defecation, sore tongue, sleep walking.

(5) Cardiac epilepsy, which is characterized by extreme low pulse, the rate having even been recorded at five pulse beats per minute.

(6) Toxemic epilepsy, including malarial, alcoholic, those of metallic poisons and those due to cardiac depressants.

(7) Apoplectic and post-hemiplegic epilepsies.

(8) Spinal epilepsies, the existence of which is questioned.

(9) Epilepsy *mutans* and *loquax*, in which the attack takes the form of excessive talking or muttering.

(10) Epileptic migraine.

(11) *Status Epilepticus*.—This is a type of the disease in which one convulsion follows another without restoration to consciousness. It is interesting here to note the similarity of this disease to albuminuric convulsions and eclampsia. The warmest adherents of differential diagnosis will object to this correlation, yet the chemist and pathologist may one day prove a close relationship between them.

The etiologic factors of epilepsy may be enumerated as follows :

(1) Traumatism, (2) reflex action from some peripheral source,

(3) toxemic influence, including uremia, the exanthemata, alcohol, metallic poisons and cardiac depressants, (4) heredity, (5) sex, (6) phthisis, (7) consanguinity.

In considering traumatism as a cause it is well to note that attacks following immediately upon an injury are extremely apt to be hysterical, epilepsy nearly always dating later.

The prominent causes for reflex epilepsy are adherent prepuce, adherent or elongated clitoris, eye strain, bone spicula in nose or cranium, depressed cranium from fracture or forceps delivery, worms in the intestines or vagina, middle ear disorders, and carious teeth.

Sex seems to have but slight influence. Nocturnal epilepsy perhaps preponderates in females and diurnal in males. Phthisis is a somewhat rare cause. In attacking the meninges or inner table of the skull it may prove such, but is more apt to terminate in the coma of tubercular meningitis.

Alcoholism is an undoubted cause both in producing a heredity, and, *per se*, alcoholic beverages containing spices like absinthe seem to be especially fruitful causes. Heredity itself does not seem to play a very important rôle.

The statistics of consanguinity hardly enter the realm of the alarming. In 30 children, the progeny of brother and sister, there was but one epileptic; of 54 where aunt and nephew or uncle and niece were the parents, there was one case; of 234 children of parents who were cousins, there were four; of 154 who were the offspring of double cousins, there were two; and of 2778 children who sprang from parents who were first cousins, there were 44. This record is at least premonitory.

In examining the question of age, we find that by far the greater number of cases come between the ages of 14 and 16, about 12 per cent. come before 3 years of age, about 75 per cent. before 20, about 50 per cent. between 10 and 20, and, as has already been stated, practically no cases come after 35 years except those of syphilitic or reflex origin.

Sexual excesses are not to-day held as a prominent etiological factor.

PATHOLOGY.

Unfortunately, anatomy, histology, chemistry have as yet failed to help us much toward reaching the pathology of this

disease, although an enormous amount of work has been done in this line. The microscope, microtome and micrometer have been plied with zeal, and yet the profession at large fail to acknowledge any conclusive evidence from this source.

Two main theories have been advanced: The theory of circulatory disturbance at the base of the brain, and (2) the theory of the cortical origin of the convulsions. In support of the former, most extensive and painstaking *post mortem* dissections have been made, carefully exact and consecutive sections cut, accurate measurements of the basal capillaries made and deviations of $\frac{1}{1000}$ of a millimeter confidently announced. When we consider that these sections have been dead for a period, hardened in alcohol for another, and pressed by paraffine and the knife of the microtome, it is not strange that we hold them to be inconclusive.

Again the undoubted existence of epilepsy as a result of anemia is urged in support of this theory. In refutation of this theory, we have the fact that galvanism of the sciatics should and does produce vaso-motor disturbance at the base of the brain, and yet does not produce convulsions unless continued for a long time.

Brown-Séquard found section of the sciatics, wounding the medulla, cerebral pedicles or quadrigeminal bodies produced epilepsy. Also, sections of one-half the cord, especially between the eighth dorsal and second lumbar vertebrae often did so, and that the progeny of animals so treated were extremely apt to be epileptic. It is difficult to see how these cause basal circulatory disturbance. The well known epileptic zone at the angle of the jaw, stimulation of which will often produce seizures in an epileptic again, does not seem likely to produce basal disturbance.

In support of the second theory, we have first the *post-mortem* lesions of reflex epilepsy, which are so often found in or pressing on the cortex; second, the fact that stimulation of cortical areas practically always produces epileptic seizures if sufficiently prolonged, and third, stimulation of motor areas in the very young (that is to say, undeveloped areas) does not produce epileptic seizures.

Spasms proceeding from the cord are practically always tonic, those from the brain tonic and clonic, and, as the fully developed epilepsy shows both kinds of spasm, it may be doubted whether pure spinal epilepsy ever exists.

The lesions of syphilitic epilepsy have been found widely dis-

tributed, the lesions of lead epilepsy show brain fat and atheromatous arteries, and many of the lesions of epilepsy simulate closely changes which might be due to prolonged congestion.

In fact, we are still in the dark and look to further experimentation to clear up these questions: Is there a true convulsive center, and if so, where? Can spinal epilepsy exist, and what pathological proofs have we? Is there a distinct unvarying cause for idiopathic epilepsy, and what is it? As long as these questions remain unanswered, the treatment must be largely symptomatic.

We have to diagnose epilepsy from Hysteria, Uremia, Tetanus, Syncope and *Petit mal*, and to decide whether idiopathic, syphilitic, alcoholic or reflex or due to poisons.

Hystero-epilepsy usually presents a normal temperature, epilepsy a rise. Uremia shows in urinalysis and often in oedema, but the two may coexist. Syphilitic epilepsy occurs after 30 years of age, headache is frequent, temporary palsies are apt to be present, pain is usual and pallor apt to be pronounced. In lead epilepsy we often have wrist drop or toe drag, the blue gum-line, and the constant high specific gravity of the urine. In malingerers we find a predisposition to fall gently, color is not apt to change, pupils react readily, corneal reflexes are present, and the thumbs are apt to be turned out instead of in.

The prognosis of post-hemiplegic epilepsy is bad. Rarely is a case cured. The prognosis of syphilitic, toxemic and reflex epilepsy is good. The prognosis of idiopathic epilepsy need not be too grave; death seldom occurs except after repeated attacks. Frequency of attack is a grave symptom, while the existence of an *aura* or hereditary predisposition seems to be favorable.

It is interesting to note what nature can stand as illustrated in one case which has been cited as having had 2,500 attacks in a month and another which had 21,800 in a year.

The treatment of epilepsy naturally divides itself into (1) the removal of the cause, (2) checking the convulsions, (3) prevention of future attacks and (4) prevention of injury during an attack.

Perhaps bromide of potash has held and still holds a more prominent position in the treatment of this disease than any other drug. Its administration is important. It should be given in large doses three times a day and pushed to its fullest physiologi-

cal expression, not small doses often repeated. In connection with diet in the so-called hypochlorization method, that is, the withdrawal of all free salt from the food, on the theory that the chlorides in the economy will be replaced by bromides, it shows its best effects.

The use of this drug is based on sound therapeusis, as it lessens reflex activity and quiets the cerebrum to a powerful extent. It must not be pushed to the extent of gastric disturbance nor undue depression. If it produce skin lesions, the simultaneous administration of arsenic is advisable.

Bromide of iron is advised in intercurrent anemia, bromide of lithia in patients of rheumatic tendencies, and the three bromides together often work happily. Digitalis alone or with bromides, belladonna and bromides, have been used with good effect. Cannabis Indica is a valuable drug; its physiologic action recommends it since it lessens reflex action strongly and often produces good cheer. It should be given in doses of $\frac{1}{4}$ to $\frac{1}{2}$ grain of the solid or 20 minims of the fluid extract.

Antifebrin, antipyrin and acetanilide have been exploited and have much good to their record. Iodide of potash is of undoubted value, especially in syphilitic cases; it should be combined with mercury where gumma exists, and its hyperdermic administration is none too rapid. Opium has much to recommend it, but its dangers, especially when coma exists, are too great. Nitrate of silver has been of service, probably in cases of gastric origin.

Apomorphia, Cocculus Indicus, Picrotoxine, Osmic acid, Borax, Electricity and Curare have been tried, but seem to have distinctly less value than the foregoing drugs.

Alcoholic epilepsy calls for the special treatment of alcoholism. Lead epilepsy calls for the elimination of the lead with Potassium Iodide.

Hygiene, diet and healthful occupation are powerful adjuvants. Their effect as illustrated in the voluminous reports of the numerous state farms for epileptics forms interesting and instructive reading.

I wish to mention one drug which it seems to me should prove of material value in this disease. Strangely enough in my preparation of this paper, which covered the perusal of Charcot, Spitzka, Letchworth, Weir Mitchell, Mills, Hare and very many

reports of the various state farms (and I here wish to express my indebtedness to these writers, who have furnished me with many statistics and much help), I have seen no mention of it. Perhaps, however, it is there and has escaped me.

The suprarenalin extract in its lessening of reflexes, its powerful stimulation of the heart and vaso-motor system, its well known value in certain gastric conditions, and its curative properties in renal complications seems to almost demand a thorough investigation. In my own hands it is in its tenderest infancy, but I have nothing to regret from its trial.

The operative treatment of epilepsy carries with it the consideration of brain tumors with its intensely interesting cerebral localization, nerve stretching and section, adherent prepuce, hooded and elongated clitoris, eye strain, neuromata, nasal and other bone spicula and many other conditions.

For the abortion of the convulsions we have Nitrite of Amyl, anesthetics, the ligature, and the needle thrust.

Quinine, Strychnia, Salicylic acid, and drugs which increase reflexes are distinctly contra-indicated.

The protection of epileptics from injury or death suggests the avoidance of contusions, dislocations, fractures and concussion of the brain, the protection of the tongue, and the selection of pursuits which insure the avoidance of death by drowning, railroad tracks and other places of excessive travel.

The complications of epilepsy : traumatism, injuries, meningitis, paralysis, apoplexies, abortions, are serious and many of them difficult to deal with because of recurrent attacks which often undo all which we have accomplished toward their cure.

Dr. F. P. Morgan, in opening the discussion, said that he wished to supplement Dr. Rhett's paper by a few remarks on the various forms of minor epilepsy. The essential element of an epileptic paroxysm was loss of consciousness. In the form of the disease most frequently observed, *grand mal*, the convulsive movements were so constant and impressive that they would naturally be regarded as the essential characteristic were it not for the fact that in some varieties of epilepsy muscular spasm is either momentary in duration or entirely absent. In all of them, however, consciousness, in the ordinary sense, was lost for a longer or shorter time ; it might be for hours, as in the coma following major paroxysms ; or for a few seconds only, as in the attacks of *petit mal* most frequently observed ; or it might be merely altered or perverted, as in psychical epilepsy, "double consciousness,"

or the "psychical epileptic equivalent," as the condition was variously termed.

In psychical epilepsy there were no muscular spasms, but there was an altered or "second state" of consciousness, during which the individual might perform acts of which he had no recollection when normal consciousness returned. The attacks were undoubtedly the result of a nervous discharge which occurred not primarily in the motor area, but in those parts of the cerebrum which presided over the intellectual processes and will. Cases were cited in illustration. In one instance a young man left his office one morning at 9 o'clock, was gone eight days, and finally "came to" in a hotel; he had no knowledge or recollection of his whereabouts or acts during the interval.

With regard to *petit mal*, Dr. Morgan referred to the description given by Hammond. The patient was perhaps standing engaged in conversation, when a momentary blank in his mental processes occurred; it was instantaneous, and disappeared leaving no confusion or feeling of discomfort. If walking, he lost himself for an instant, but continued to walk, and did not stagger. In severer seizures, if conversing, he stopped suddenly, stared vacantly but fixedly for a moment, and might drop anything which he had in his hand. If walking, his steps were arrested for an instant, he staggered, and would fall but for the quick return of consciousness. A case reported by Starr was cited in illustration.

Narcolepsy, or sleep epilepsy, was very closely allied to psychical epilepsy. Some of the text books did not mention it at all, others described it very briefly. The patients suffered from attacks of unconquerable drowsiness and fell asleep in spite of every effort, no matter what they were doing or where they were. In some cases the seizure appeared to be of a purely nervous origin; the nervous discharge manifested itself in sleep seizures instead of the usual epileptic paroxysms. Dana suggested that the disorder might be caused by fright, overstrain or humoral poisons acting on a predisposed nervous system. Syphilis, malaria, anemia and indigestion might be fundamental factors in the etiology. Females were more often affected than males, and the susceptible age was between 15 and 40. The course was chronic. Dr. Nammack, in the *Medical Record* for March 4, 1899, reported an interesting case of narcolepsy: Mrs. C., 28 years old. At age of 14, while sitting on a table watching a game of cards, she suddenly fell asleep; when awakened she experienced no nervous shock or surprise. After this she was liable to fall asleep at any time or place. Frequently this occurred while she was sewing, or walking, or riding horseback. Whatever might be her occupation, she continued to perform the work correctly and without mishap. Aside from this trouble she enjoyed perfect health. The family history showed that her maternal grandmother suffered

from similar attacks. In conclusion, Dr. Morgan summarized the points concerning the pathology of epilepsy which were generally considered to have been established.

Dr. W. L. Robins regretted that he was not present to hear all the paper. A point he did not understand—Did Dr. Rhett consider epilepsy to be a neurosis, or an organic disease? Dr. Robins wished to make a few suggestions on the side of organic disease. Recent writers had shown that in every case of idiopathic epilepsy examined *post mortem* there had been found a degenerative change in the cerebral cortex. This seemed to have been practically uniform. Starr recently reported 2,000 cases of idiopathic epilepsy; 70 per cent. occurred prior to the age of 20, in the developmental period. Also, in a large proportion there was a deficiency in the higher intellectual powers, attention, self-control, etc. There were also mental and physical signs of degeneracy, and manifestations of mental deficiency. Heredity entered into 700 of the 2,000 cases; 50 were the effects of other diseases; 12 were due to sunstroke; 26 occurred in advanced life, the epilepsy being due to endarteritis and atheroma. Epilepsy had occurred in the parents in 136 cases, and other nervous diseases in 118; alcoholism in 120.

Dr. Robins thought that the general leaning was toward the conclusion that reflex epilepsy did not occur. Patients upon whom he had operated for reflex causes came back to him; this was almost the invariable rule. Hence he was of the opinion that this form of epilepsy did not occur.

Dr. Acker said that the diagnosis between idiopathic epilepsy and epileptiform convulsions was not always easy, especially if due to reflex causes. Case: Daily convulsions, apparently epileptic, in a child; everything had been done, potassium bromide given, etc., to no purpose; he sent the child to the Children's Hospital, and it had no more convulsions; when it was taken home, they began again; taken to the hospital, they ceased; again taken home, and the convulsions gradually ceased. Another case was that of a child who was having daily convulsions; it was admitted to Children's Hospital, and had none there for two months; it was then sent home, and he did not know how it did afterward. In these two cases the result was not due to medicines, but to change of diet, etc. Case 3 Boy, who goes into the epileptic state for two or three days every 15th of the month. He first has a convulsion, then another, and they become more and more frequent until they are almost continuous. Nothing has benefited him, and Dr. Acker doubted whether drugs do any good whatever in idiopathic epilepsy. He had used them faithfully; had put up gallons of the Brown-Séquard mixture. They merely deferred the attacks, were depressing, and had a bad effect. Hygienic measures gave by far the best results.

Dr. Clark said that the paper opened a broad field for discus-

sion. Epilepsy was generally divided into two general classes—idiopathic and Jacksonian or organic. The more he saw and studied the disease the more convinced he became that all forms of epilepsy could be included under the general heading of organic disease of the brain.

We all must admit that Jacksonian epilepsy was dependent upon an irritation of the cortex or an organic lesion, and producing either the motor form, with a local spasm in one or more parts of the body on the same side; the sensory form, giving rise to sensory or special sense hallucinations; the aphasic form or the psychical form.

In comparing the symptoms of idiopathic epilepsy with the Jacksonian variety, no hard and fast lines could be drawn between them. In the ordinary form of epilepsy, the convulsion might begin in one member and gradually spread to all the members of the body. In the Jacksonian form, the convulsion was confined to a group or groups of muscles, but eventually became general.

In both forms an *aura* might be present, appearing in about 30 to 40 per cent. of the cases. There were many other symptoms in common and points of similarity between them, which he would not take time to enumerate, but the few he had mentioned showed the close resemblance between the attacks of Jacksonian and the ordinary form of epilepsy.

The conditions of idiocy, imbecility, infantile hemiplegia and diplegia were frequently associated with epilepsy; also the latter stages of general paralysis of the insane and senile dementia with epileptiform convulsions. These were strong arguments in favor of the organic nature of the disease. Again, in a careful examination of the cases a mental deterioration could be found in most of them. In an institution with which he was connected the statistics showed 90 per cent. of the epileptics to be of unsound mind. Epilepsy was a disease of youth or childhood: 25 per cent. of the cases developed before the tenth year; about 50 per cent. before the fifteenth year; and 75 per cent. before the twentieth year. The early manifestation of the disease simply convinced us of the fact of the non-developmental condition of the patient.

As to the causes, 40 per cent. gave evidence of heredity. Trauma came next in importance, and it was therefore in all probability due to organic lesion of the brain.

The infectious fevers, insolation, fright, and many other diseases were alleged to be factors in causing this disease.

Dr. Acker related a traumatic case. The bone was depressed by an injury to the skull. There was pain in the fingers of the right hand, running up the hand and arm. Operation was accordingly performed, and a cyst was found beneath the dura. The patient appeared to be doing well.

Dr. J. Dudley Morgan said his experience had been that, with the exception of alcoholism, heredity had little to do with the occurrence of epilepsy. As a rule the children of his epileptic patients did not have epilepsy. If alcoholism entered into the case, however, the percentage was high. At the Saratoga meeting several years ago, in the Section on Nervous Diseases, the opinion was expressed that alcoholism entered into the heredity in 60 to 70 per cent. of cases. Dr. Rhett stated that syphilis was almost always the cause after the thirtieth year of life; but Dr. Morgan had under his care a man beyond that age, whose epileptic attacks were evidently due to disturbance of circulation in the brain, caused by a heart lesion.

Little was really known as to the etiology. Epilepsy might be due to hyperemia or anemia; it might be inherited or acquired, etc. Treatment was unsatisfactory. Beyond Brown-Séquard's shot-gun mixture little had been accomplished. It merely delayed the attacks, and should be given in moderate doses. He was surprised to hear Dr. Robins say that epilepsy was not due to indirect irritation. Dr. Morgan could recall two or three instances in which wounded surfaces caused epileptic attacks which ceased when the cause was removed.

Dr. Wilkinson agreed with Dr. Morgan that epilepsy was often due to local irritation. For instance, there were on record 30 or 40 cases in which epilepsy of years' standing had been cured by the proper adjustment of glasses. Dr. Reber, of Philadelphia, had reported six cases cured, after operations for insufficiency of the ocular muscles. Dr. Gould had also reported several cases in which a cure was wrought by correcting errors of refraction.

Dr. Anderson said that he had recently seen two interesting cases: 1. A man whose skull had been fractured several years ago; since then he had had epileptic attacks; the injury was on the left side, the convulsions always on the right. 2. In this case the man had been shot in the head, but the bullet did not penetrate the skull; recently he had developed Jacksonian epilepsy; there was first a twitching of the nose, then of the tongue, and no other muscles were involved.

Dr. Rhett, in closing, said that he would answer as best he could some of the points brought out in the discussion. In answer to Dr. J. D. Morgan, Dr. Rhett had said in his paper that epilepsy, after the 35th or 40th year, was *practically* always of syphilitic or reflex origin. In Dr. Morgan's case the arterio-sclerosis, causing the disturbance of circulation in the brain, may have been of syphilitic origin. In answer to Dr. Robins, the arterio-sclerosis here also may have been due to syphilis. Dr. Rhett would not undertake to decide the question whether epilepsy was a functional or an organic disease. As to treatment, he agreed in the main with what had been said. But each attack weakened the patient, and having a drug which lengthened the

intervals, he believed that we should use it, along with hygienic and other measures. He saw no objection to a shotgun if one knew of no weapon which shot a bullet.

CASE OF LEUKEMIA.*

By N. D. GRAHAM, A. B., M. D.,

Washington, D. C.

A colored man, laborer, age 24, entered Freedmen's Hospital, Washington, March 1, 1904. He walked into the office and was admitted as a case of malaria. He complained of pains in head, back and wrist, and chills. The family history was negative. He did not use alcoholic liquors, but smoked a great deal. No venereal trouble. Had had measles, whooping cough, a severe attack of typhoid fever five years ago, and kidney trouble for three years, with occasional suppression of urine.

His present illness began one week before with vertigo (blind staggers), nausea, vomiting and headache, followed by chills and fever; no pronounced sweats. Inspection revealed a well-nourished man with anxious expression, mucous membranes of good color, tongue coated, apex heart-beat visible in normal position, chest expansion increased on right side. Skin hot and dry; no glandular enlargement; spleen large and firm, but not tender, extending to one inch below umbilicus. The edge of the liver was felt $1\frac{1}{2}$ inch below costal margin. Percussion negative, except for showing enlargement of spleen, and that the liver was not enlarged but pushed down. Auscultation showed heart sounds normal. Suppression of breath sounds over left lower lung. At this time the temperature was 103, pulse 100 and respirations 30. He was conscious and answered questions intelligently but slowly. No malarial parasites could be found in the blood, although a careful examination was made.

The next day the temperature had risen to 105; pulse, 116; respirations, 48. He became unconscious and had involuntary stools. The blood examination showed only a slight leucocytosis (14000), due to an increase in the polymorphonuclears only.

March 4 the temperature was 104, pulse 144, and respirations 38; general condition the same. A second blood count was

* Reported with specimen to the Medical Society of the District of Columbia, May 11, 1904.

ordered but the patient died before this could be done. No definite diagnosis was made.

Dr. D. S. Lamb made the necroscopy and reported the body well nourished ; no external marks of interest. Head, neck and spine not examined. Lungs oedematous ; some old adhesions of left lung with partial collapse. Heart normal. Liver pale ; gall-bladder thickened, contained some thin, pale bile. Portal vein and tributaries dilated ; portal and splenic veins eroded and shreddy in places and with fibrous plates in the wall ; some hemorrhages around portal ; new growth in splenic vein. Spleen 66 ounces, red, anemic. Pancreas normal. Stomach and intestines distended with flatus ; otherwise appeared normal. Kidneys normal. Bladder distended with urine.

The failure of the blood examination to show the true character of the disease may have been due to the fact that an intercurrent infection sometimes reduces the leucocytosis to normal in cases of leukemia.

Dr. Claytor said that while the spleen looked leukemic the diagnosis was somewhat doubtful, as there was no leucocytosis. Many other conditions might cause hypertrophy of the spleen. The presence of infection was interesting, and might modify the point with reference to leucocytosis.

Dr. D. S. Lamb said that the appearance of the spleen in his opinion excluded lymphadenoma. The lack of pigmentation cut out malaria. These being excluded, leukemia was left as the most probable cause. The history, unfortunately, was meager.

CASE OF CONGENITAL SYPHILIS.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

This was a colored male infant two months old ; its parents said to be healthy and no history of syphilis was obtained, although the mother was under suspicion. There was one other child, living and well. The baby was taken sick when about one month old ; was very fretful, but nursed fairly well. Finally was admitted to hospital, where it died three days afterward. It seemed to be fairly nourished ; eyes bright, tongue clean ; erup-

* Reported with specimens to the Medical Society of the District of Columbia, May 18, 1904.

tion on buttocks and lower limbs. While in hospital, its temperature was 97 to 99, pulse 80 to 92, respiration 20. I made the necroscopy; the body, as stated, was well nourished; lungs anemic and collapsed; heart normal; abdomen prominent; liver large, weighing 11½ ounces, the normal weight at that age being 7 ounces, so that the liver was increased in weight more than half; it was yellow and firm. Dr. W. M. Gray, of the Museum, examined it microscopically and stated that it was extremely cirrhotic, and he had no doubt that it was syphilitic. The spleen was also large, weighing 2 ounces, while the normal weight at that age should be less than half that amount. Pancreas appeared normal. Upper lumbar glands enlarged. Stomach and intestines normal. Kidneys congested. There was a hydrocele in the right scrotum.

The following remarks may be made on this case: This diffuse sclerosis of the liver is probably the most common form of lesion affecting this organ in congenital syphilis; on section, we see a semitransparency and the outlines of the lobules are lost. The sclerosis has been called by several names; Gubler calls it fibro-plastic, and Wagner, infiltrating syphiloma. The pressure of this sclerosed tissue on the vessels and liver cells gradually lessens the liver function, and this would in time cause death. In this case there were no gummata, and none of the described "semolina" grains. The splenic enlargement is apparently a hypertrophy due to interference with the portal circulation.

CASE OF NEPHRECTOMY FOR LARGE CYSTIC KIDNEY.*

By I. S. STONE, M. D.,

Washington, D. C.

Miss M., white, age 60, was first seen professionally by me May 6, 1904. Her health had been almost perfect for many years, she having had only one attack of illness two years ago, which her physician thought due to "grippe," but he did not have his attention called to the condition of her kidneys. No examination of the urine was made, although the doctor said she "made

*Reported with specimen to the Medical Society of the District of Columbia, May 25, 1904.

a slow but perfect recovery." She continued well enough to attend to her household duties until the day previous to my visit; having then been informed of the presence of a tumor she consented to further examination, and as a result entered Columbia Hospital May 6. Her condition had greatly changed for the worse by the time of the operation, which was performed on the 9th. She had grown perceptibly weaker, her pulse was feeble and remained at 120 per minute. Her temperature also reached 101, and her skin assumed a decidedly chlorotic hue. The examination of her urine was as follows: Specific gravity 1027, urea 12 grains, no albumen, no casts, urine acid.

When examined under ether the tumor appeared to extend from the ribs on the left side to Poupart's ligament below, and from the loin on the left, to about three inches to the right of the median line. It was hard, firmly fixed in the abdomen, and had no apparent pelvic connections which could be discovered by vaginal examination. The uterus was small, freely movable, and we felt sure that she had neither a fibroma or broad ligament cyst, and that if connected with the uterus in any way the pedicle must be one of great length. We thought of the possibility of "a parasitic growth," but here we had one which did not answer to this description, for the tumor appeared to extend well upward to the neighborhood of the spleen, a locality which a parasitic tumor could scarcely reach. The tumor in this instance was behind the large bowel, yet gave no resonance on percussion, as will be shown later, neither did its lobulated or multilocular character permit us to observe the least sign of fluctuation or the characteristic wave usually found in ascites or in the average ovarian cyst. We observed but few if any enlarged vessels upon the abdomen of this patient, such as one may observe in ovarian and other large tumors. A very large proportion of the operations for removal of large cystic kidneys have been performed after a mistaken diagnosis. In two of my cases where we had to deal with very large tumors this mistake was made. One of these tumors weighed forty pounds; the other, occurring in a girl of sixteen, weighed over ten pounds.

In the present instance, when we had the patient ready for the incision, we finally reached a conclusion that the tumor might be a large kidney. With the large tumors one may possibly find the operation very easily completed through the central abdomi-

nal incision, and this was the case in the two mentioned above. On the last occasion, we made the central incision for the reason that we wanted to fully comprehend the relations of the growth, and we were impressed with what we saw and learned of its relations with the other abdominal organs. The tumor was behind the large bowel and had developed behind the descending colon and had spread the peritoneal surfaces widely apart, leaving the bowel itself upon the anterior left aspect of the tumor. The colon was so greatly stretched as to resemble a band rather than a portion of the large intestine. Its vessels were greatly attenuated and wide apart. This was to the reporter a most interesting feature. We had some misgiving as to our ability to safely remove such a tumor without seriously disturbing the vessels of this over-stretched mesentery which no longer had the least resemblance to a mesentery. We extended our incision downward to the left until the *quadratus lumborum* muscle was reached, and after incising the fold of peritoneum at this point, we proceeded with the enucleation of the tumor. After the enucleation of the portion of the tumor outside or to the left of the growth, it was necessary to open the larger sac which lay to the right of the colon.

The removal of this kind of growth which was in such intimate relation with the important structures behind the peritoneum, especially when the greater part of the work has to be done without the aid of sight, was a matter of considerable interest. For instance, the aorta and common iliac artery are both exposed for a considerable distance, and one can easily feel the pulsations of these vessels while separating the connection between them and the tumor. We were fortunate in causing no injury to any of these structures. In this instance we were more fortunate than on a former occasion when we were operating upon a similar tumor of the right side. As the tumors in this situation are close to the vena cava, it is easily understood why one should feel more anxiety, as it is very much more difficult to safely detach a tumor from a vein without the aid of pulsation than in the case of the left side and with the aid of the pulsation of the large thick-walled artery. On removing the growth in the right kidney operation above mentioned, we injured the vena cava or a small vein leading into it, causing a most serious hemorrhage, which threatened the life of the patient for a time, but which we finally succeeded in clamping in such a way as to check the flow

of the blood. We packed gauze around the forceps and allowed them to remain for 48 hours and our patient made a perfect recovery. The operation was completed on this last occasion by the application of a quantity of gauze so placed as to make perfect compression and yet allow easy removal through the lower angle of the incision. The ureter was secured near the margin of the incision also, and we shall have no trouble with it in the future, as we are confident that there was no infectious material in it and for the additional reason that the patient had already reached the time when it was prudent to remove her to her room and permit her to rally from the shock of an operation which had already lasted some time. All our operations for cystic kidney have easily recovered without the removal of the ureter, although if the patient gave promise of a good enough condition after the tumor had been successfully removed we should immediately proceed to extend the incision and completely extirpate the ureter. The patient from whom we took this specimen has recovered nicely, and our anxiety about the blood supply of the large bowel speedily vanished after the fifth day, when active peristalsis had followed a glycerine enema.

May 10th.—The urine was 1023 acid, and contained some albumen, 12 grains urea, epithelium, pus cells and granular casts; 13th, no albumen, some mucus and epithelial cells; 20th, much albumen, 4 grains urea, many pus cells.

Dr. James Carroll, of the Army Medical Museum, reported that "for microscopical examination a piece was taken through the thickest portion of the wall of the cyst, from what remained of the cortical portion of the kidney. The average thickness of the tissue representing the cortex was about one-fourth of an inch, and it nowhere exceeded three-eighths of an inch. In the whole section only two glomeruli were found that could be recognized as such; these showed well defined but atrophied tufts and distinct capsular spaces containing a moderate amount of coagulated albumen. The papillae and pyramids had entirely disappeared and nothing remained of the epithelial structures but the remains of a uriniferous tubule here and there. Besides the two glomeruli mentioned above, one or two others could be identified, but with difficulty, owing to their almost complete destruction. The section consisted almost entirely of connective tissue lined by a layer that resembled old granulation tissue and contained small

vessels engorged with blood in addition to heaps of cells filled with brownish-yellow blood pigment which responded to the test for haemosiderin. There were, in places, slight evidences of inflammatory infiltration with polymorphonuclear leucocytes, but nothing could be found that would justify a diagnosis of pyonephrosis. The condition appears, therefore, to have been one of chronic hydronephrosis, with atrophy of the kidney from pressure."

Dr. F. R. Hagner suggested that the diagnosis might possibly have been made before the operation if the ureters had been catheterized, as there was probably no urine secreting from the diseased kidney.

Dr. Stone, in reply, said that if anything had been suspicious about the urine he would have had the ureters catheterized. Cyst was not even suspected. Compression and bending were the principal causes of hydronephrosis. A double curve was present in this case.

Dr. Vale said that the lesson to be learned was that in obscure abdominal tumors the urine should always be studied.

Dr. Hagner said that he did not intend to enter any criticism. It might have been impossible to introduce the catheter owing to the bending, but even this would show the side affected.

CASE OF OSTEO-ARTHRITIS OF KNEE-JOINT OF LONG STANDING.*

By D. S. LAMB, A. M., M. D.

Washington, D. C.

The specimen consists of the left knee-joint, sagittally bisected; showing osteo-arthritis; fringing of cartilages and synovial membranes; ridging and grooving of articular surfaces; erosion and exostoses of bone at the margins of the articular surfaces; ligamentous ankylosis, limiting the motion of the joint to 45 degrees. Also two loose fibrous masses.

From an army officer who was shot in 1863 in the front of the thigh, just above the knee. Two months afterward the limb was still swollen and discharging pus, but a piece of clothing came out and the swelling and discharge lessened. He recovered sufficiently to do light duty. About two years after the injury his

* Reported, with specimen, to the Medical Society of the District of Columbia, May 25, 1904.

knee was still stiff, and during the next few years he was examined by several army medical officers, some of whom concluded that he was able to do duty, others that he was unable. Ten years later he was examined again by several medical officers, who were of the opinion that he was unfit for field duty. He died in 1904.

Dr. W. M. Gray of the Army Medical Museum made two radiographs and Dr. Metzertott of Washington one, during 1900-03. The two loose bodies were at first suspected to be a bullet, but at the second taking Dr. Gray diagnosticated loose cartilages.

I was asked to make the necroscopy. The knee-joint was as described; there was some fluid in the cavity. The loose bodies were at the uppermost part of the joint in front of the femur and rather above the patella; probably they did not always remain in one place, and the saw which bisected the joint may have pushed them higher up than where they had previously been.

Perhaps the most interesting question to arise in this case is as to how long the osteo-arthritis had lasted; whether or not it dated back to the time of injury, 40 years before; and here again opinions differed. I was inclined to think it did, but of course in taking this position I had to consider the history that seemed to bear on the condition. Forty years seems a long time, and yet while I have not found any such length of time definitely stated anywhere, still I have found mention of "many years duration." This was the only joint affected.

CASE OF HUMAN ISCHIOPAGUS.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

This rather rare monster is a female. In addition to the usual junction by the pelvis one of the twins has a harelip and its right hand is somewhat clubbed. The lower limbs on one side of the monster are apparently fused to the feet, which are mostly separated. The parents were Filipinos, married, and this was the first pregnancy. They lived at Lopez, Tyabas province, P. I. The mother was not attended by a physician, but the labor was said

* Reported with specimen to the Medical Society of the District of Columbia, April 13, 1904.



to have been normal and without accident to mother or children ; both children nursed and lived 49 hours. The specimen was brought to the Army Medical Museum by Sergeant F. W. Donoho, of the Hospital Corps, U. S. Army, who interested himself in the matter, and to whom great credit is due for taking the trouble to get the specimen and bring it so far.

The specimen, as received at the Museum, was already quite hard, and instead of making a dissection a skiagraph was taken by Dr. Gray of the Museum. The engraving fails to show the details quite as well as does the skiagraph. The skeletal appearances in each are somewhat confused in places by the overlapping of limbs. The main interest, of course, is in the parts below the waist line.

One spinal column is quite straight ; the other much curved by a scoliosis with its convex curve to the left. The first three segments of one sacrum are distinct, but of the other sacrum confused ; the remainder of these bones and the coccyges are invisible, being probably still in cartilage ; whether there is an actual junction of the two individuals by the sacra and coccyges is, I think, doubtful ; there seems to be too much space between the two individuals.

The scoliotic child shows the right ilium, ischium, pubis, femur, leg bones, astragalus, calcis and metatarsals, all distinct. The other child shows on the same (*left*) side the following : ilium somewhat uncertain ; ischium, pubis ; femur with lower end confused ; tibia and fibula somewhat distorted ; and metatarsals distinct.

On the other side of the specimen is a fusion of both ischia and pubes appearing as a round shadow ; both ilia are distinct ; only one femur with unusually large acetabular end, and half way down the shaft, the bone is divided in two ; there are duplicate leg bones, astragali and calci ; no sign of tarsal or metatarsal bones, which are therefore cartilaginous.

The upper limbs : Both left clavicles and scapulae are distinct ; each humerus fractured in middle of shaft (presumably prenatal or parturient) ; bones of forearms distinct ; metacarpals and phalanges mostly distinct. Both right upper limbs are confused by the lower limbs, also by flexion ; bones of forearm longer than usual ; metacarpals not distinct.

REPORT OF THE EDITORIAL COMMITTEE TO THE
MEDICAL SOCIETY OF THE DISTRICT OF
COLUMBIA, MAY 4, 1904.

As the result of a motion and discussion thereon at the meeting of the Society, April 20, 1904, the Editorial Committee was directed to consider and report upon the question whether in order to somewhat reduce the expense of publication of the ANNALS the number of printed pages occupied by an essay shall be limited or not; and if limited, how can the limitation best be made.

Your committee has considered the question, and would report as follows:

The cost of publication of the ANNALS, including, of course, the various items of composition, proof reading, corrections, press work, wrapping, and mailing or otherwise distributing the editions, and deducting the receipts from advertisements, is just about \$1.50 per page. At this rate it is easy to calculate that an essay of 10 printed pages costs the Society \$15.00; one of 20 pages, \$30.00, and one of 30 pages \$45.00.

The Society has from 32 to 34 meetings a year, so that each number of the ANNALS covers the work of 5 to 6 meetings, including essays read, reports of cases with or without specimens, reports of committees, obituary notices and discussions on all these, and the essential parts of the Society proceedings. There is no correspondence, there are no excerpts from other journals, and the editorials are limited to business matters in connection with publication. Believing that the medical institutions and work of the District not under the supervision of the Society, but related to it because its members control to some extent these institutions, should be represented in the ANNALS, your committee has devoted several pages of each number thereto.

In estimating the cost of each number issued it is easy to see that five or six essays of 10 pages each would alone cost in total from 75 to 90 dollars. It has so happened that some essays have never been sent to the committee, otherwise the cost would have been greater than it actually has been.

In volume ii, 9 essays exceeded 10 pages each, two of which, however, were read by persons invited to do so. The remaining 7 essays *in toto* exceeded 10 pages each by $44\frac{1}{2}$ pages, costing the Society therefor \$66.75. Now, 10 pages of the ANNALS means a total of about 4,500 words, which is probably an average of length for original communications in medical journals. There is much to be said in favor of short essays, and except in the case of a person invited to read a paper, the committee believes that it would be perfectly proper for the Society to fix a maximum of length of a printed paper at 10 pages; provided that the reader might exceed that number if willing to pay for the excess at the

cost rate, namely, \$1.50 per page. As things are now, the committee cannot refuse to publish any paper, whatever may be its length. Such a limitation of length would save from 50 to 75 dollars a year, perhaps more.

This saving, however, would not be sufficient to prevent the gradual encroachment on the treasury funds, of which the treasurer complains, but for which, of course, the ANNALS is not alone responsible. There is another aspect of the whole question of the expenses of the Society. The committee believes that the publication of a medical periodical gives a dignity and importance to the Society in its relations primarily to the District, and secondarily to the profession at large that could not be obtained in any other way. Regardless of any personal relations which the present committee bears to the journal, it believes that to discontinue the periodical would be decidedly a backward step. This Society always has been an important factor in this community; has obligations to the community which it may not forego, and to discharge them requires the expenditure of money as well as time and effort.

Now it should be remembered that the committee work of the Society is quite large in the course of a year and is always done gratuitously, but inevitably is attended with more or less personal expense to the committee members, though that expense may be small. The only bills presented are for printing and possibly typewriting. In other words, the committee members are paying in time and work and also to some extent in money outlay, besides paying the annual fee in common with other members. The conclusion of the matter is that the committee believes that an increase of the fee from four to five dollars a year would solve the problem of meeting both the ordinary and extraordinary expenses of the Society, and would recommend such increase, but would also recommend limiting the number of printed pages of each essay to somewhere between 10 and 15 pages; say 12 pages, with permission to exceed that number if the essayist will pay for the excess. This, of course, would not apply to persons invited to read papers, or to the annual address of the President.

The committee turns in yearly \$100.00 for advertisements, which helps to pay the cost of publication. This sum has been mainly obtained through the efforts of Dr. Jackson, one of the members of the committee. There seems to be no good reason why a sufficient advertising patronage should not be obtained from merchants in this and other cities to cover the entire cost of publication, and the committee has been looking forward to this achievement. The committee would suggest anew that members of the Society take a personal interest in securing such advertisements.

D. S. LAMB,
WALTER A. WELLS,
V. B. JACKSON,
Committee.

REPORT OF THE MILK COMMISSION.*

WASHINGTON, D. C., July 1, 1904.

To the Medical Society of the District of Columbia.

On behalf of the Milk Commission of the Medical Society of the District of Columbia I have the honor to transmit herewith a report of the work of the Commission for the year ending June 30, 1904.

By reason of the delay in fixing the status of the relation of the Milk Commission to the Medical Society and the lamentable death of the President of the Commission, Dr. Emil A. de Schweinitz, and the lack of funds wherewith to properly present the work of the Commission, the activities of the Milk Commission have necessarily been somewhat curtailed.

By the death of Dr. de Schweinitz the Commission not only sustained an irreparable loss in its directive force, scientifically, but the laboratory facilities which had been placed at our disposal by Dr. de Schweinitz were not available after his death, so that we were deprived of one of the chief means for our immediate success. By means of actual demonstration of milk below the standard we could more readily convince dealers and producers that the Commission had a real cause for existence.

In presenting the subject of the Milk Commission before many milk men the first question usually asked by them was What is the necessity for the existence of this Commission? Does not the Health Office do all that is required in seeing that milk is up to the proper standard, and second What is the public demand for milk of a higher standard than that required by the Health Office?

It was found necessary, on account of the attitude of most of the producers and dealers, combined with the three conditions above mentioned, to change our plan of procedure for the time being and inaugurate a campaign of education. Accordingly the Secretary of the Commission was instructed to study the question in all its local aspects and report to the Commission whenever in his judgment he had secured sufficient data upon which to base a plan of procedure.

Pursuant to these instructions, the Secretary accepted an invitation to present the matter of the Commission before the Milk Dealers and Producers' Association of the District of Columbia, and to elicit from them as an organization their attitude toward raising the standard of milk and also to obtain their objection to the regulations as laid down by the Commission. While a few favored the idea of raising the standard the majority were content to allow conditions to remain as they were, asserting that they produced and dispensed pure milk, and that this agitation was the result of persecution on the part of the Health Office, and they have gone to the extent of employing an attorney to defend their cases in the courts. A few of the more progressive men

* Made July 4, 1904, and referred to the Executive Committee.

claim to be willing to aid the Commission in any way they can to elevate the business and improve the quality of milk. The majority, however, are against any change.

A number of dairies were visited for the purpose of ascertaining the manner in which the milk was kept and to obtain the personal views of the dealers.

On several occasions an invitation was extended to a number of dealers to meet the Secretary of the Commission for an informal discussion on the subject of the milk supply of the District of Columbia. To the first invitation twelve men responded, and a conference lasting between three and four hours ensued at which much valuable information was obtained regarding the details of the business from a commercial standpoint.

On the second occasion ten responded to the invitation and with a similar result. On the third occasion invitations were sent to ten more but only one responded. At this conference Dr. John B. Nichols had prepared several cultures and very kindly demonstrated the presence of many thousands of bacteria in what was supposed to be a sample of pure milk, one sample of morning's milk showing several hundred thousand bacteria.

The chief obstacle to the production of certified milk under the auspices of the Milk Commission is the fact that dealers cannot afford, so they claim, to undergo the expense, at the present price at which milk is retailed. This objection is a practical one, and in order to satisfy ourselves on this point we have undertaken to study the subject from the commercial side. This it can be readily understood is an arduous, difficult, delicate and long continued task, because of the difficulties in obtaining correct information on account of the personal equation of the producers and dealers, and also because of the somewhat limited time at the disposal of the Commission, all of whom are busy men.

The investigations thus far have demonstrated one indisputable fact, and that is that a large part of the mischief caused by the improper handling of milk is due to the methods in vogue in a large majority of the grocery stores, where milk is sold in small quantities. The fact that the Health Office has successfully prosecuted a large number of these cases, is convincing evidence that legislation governing such sales is necessary. The danger to public health is a real one, and the Commission would recommend that the Medical Society of the District of Columbia through its Executive Committee introduce into Congress a bill to regulate the sale of milk by grocers, making it unlawful to handle milk in any other manner than in sealed bottles; that is to say that the milk must be received from the dairy all ready bottled in $\frac{1}{2}$ pints, pints or quarts, and must be sold only in these original packages. Very respectfully,

J. H. McCORMICK, M. D.,
Secretary Milk Commission, Medical Society, District of Columbia.

In Memoriam.

THOMAS J. CHEW, M. D.

[Resolutions Adopted by the Medical Society of the District of Columbia, May 4, 1904.]

WHEREAS, it has pleased Almighty God, in His wisdom, to remove from our midst DR. THOMAS J. CHEW, a highly respected and much loved member of this Society,

Resolved, That we desire to express to his family our deep sympathy in their affliction and our high appreciation of his ability, virtues and valuable services to the community at large.

Resolved, That a copy of these resolutions be sent to his family, to the press, and be spread upon the minutes of this Society.

JOHN W. BAYNE,
LEON L. FRIEDRICH,
E. OLIVER BELT,

Committee.

Editorial.

The attention of members is invited to the instructions of the Society to its Editorial Committee (May 4th) that hereafter an essay shall not occupy more than ten pages of the ANNALS, unless the essayist is willing to pay for additional pages at cost rate, \$1.50 per page.

We have been requested to announce that "the Thirtieth Annual Session of the Mississippi Valley Medical Association will be held at Cincinnati, Ohio, October 11, 12, 13, 1904, under the presidency of Dr. Hugh T. Patrick, of Chicago. The headquarters and meeting places will be at the Grand Hotel.

"The annual orations will be delivered by Dr. William J. Mayo, of Rochester, Minn., in Surgery, and Dr. C. Travis Drennen, of Hot Springs, Ark., in Medicine.

"Request for places upon the program, or information in regard to the meeting, can be had by addressing the Secretary, Dr. Henry Enos Tuley, Louisville, Ky., or the Assistant Secretary, Dr. S. C. Stanton, Masonic Temple, Chicago, Ill.

"The usual railroad rates will be in effect."

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE
DISTRICT OF COLUMBIA, MAY 4, 1904.

The President, Dr. Charles W. Richardson, in the chair; 55 members present.

Dr. D. S. Lamb read a report from the Editing Committee relative to limiting the length of the essays published, in order to secure greater economy in connection with the publication of the ANNALS. The report was accepted, and the recommendations adopted, except that the limit of length of an essay was made 10 pages, and the recommendation to increase the annual dues to \$5.00 was eliminated. See page 278.

Dr. Bayne called the attention of the Society to the death of Dr. Thomas J. Chew. The Chair appointed Drs. Bayne, Friedrich and Belt a Committee on Resolutions. The Committee reported and the resolutions were adopted. See p. 282.

Dr. Bayne said that he would be derelict in his duty did he not add a sprig of myrtle to the bier of his departed friend. It had been his privilege to be intimately associated with Dr. Chew all his life. They had been students together, had boarded at the same house in Baltimore and had graduated from the University of Maryland together, in 1868.

Dr. Chew was a man of distinguished lineage; he was a nephew of Professor Chew, of Baltimore, and a great grandson of Bishop Clagett, of Maryland. He was a man of modest, retiring and lovable disposition. He was a graduate of Princeton, and spoke fluently three or four languages. He was a hard and close student of all matters pertaining to his profession, and was well prepared on all subjects connected with it. Four years ago he was made a visiting physician to the Washington Asylum, and recently he had been elected the President here of the Alumni of the University of Maryland. He was extremely modest in his demeanor, and was gentle, kind and affectionate to his family. He died with the universal respect, love and admiration of his family and the community at large.

Dr. Friedrich said that it had been his good fortune to be intimately acquainted with Dr. Chew for twenty years. He was always courteous in manner, modest in demeanor, and was well up in all matters pertaining to his profession. Dr. Friedrich had been summoned in haste at midnight on Sunday. He found Dr. Chew unconscious, in which condition he died at 6 o'clock on the same morning, all efforts to arouse him being futile.

The following cases and specimens were presented:

By Dr. I. S. Stone: Result of gastroenterostomy for cancer of the pylorus. Discussed by Dr. Balloch. See p. 250.

By Dr. D. S. Lamb, for Dr. Winter: Cancer of uterus.

By Dr. D. S. Lamb: 1. Malignant adenoma of pancreas. 2. Tumor of lungs.

By Dr. J. Taber Johnson : Dermoid cyst. Discussed by Drs. Chappell, I. S. Stone, Kleinschmidt, G. B. Miller and Nichols. See page 252.

Of the specimens presented by Dr. Lamb, the *tumors of lungs were probably cancerous*. The lungs were everywhere adherent and the condition was probably secondary. The patient, a woman, age 43, after having been ill about three months, was admitted to hospital delirious and died two days afterward. The necroscopy was made by a medical student, Mr. J. W. McClellan. He found several large nodules in the right mamma and nodules also in the mediastinal tissues and glands. There were also nodules in the uterus. Evidently a case of general malignant disease, although the primary focus may have been the mamma or uterus. Microscopic examination not yet reported on.

Malignant adenoma of pancreas causing pressure on pancreatic and common bile ducts and their tributaries. From a man, aged 63, a laborer. Said to have been sick one month. Was admitted to hospital bleeding profusely from nose and mouth; temperature 96, pulse 88, respirations 20. Died next day. The necroscopy showed marked jaundice; yellowish ascitic fluid in abdomen; liver large and bile stained; gall bladder distended with dark bile; biliary channels dilated. Spleen small and soft; capsule thickened. Kidneys showed atrophy of cortex.

For Dr. Winter, a specimen of *malignant growths in uterus*. From a woman, age 54, who had been ill a long time; mother of several children. The iliac and lumbar glands were enlarged.

Dr. Jack read the paper of the evening. Subject, "Surgery in Old Persons." Discussed by Drs. Balloch, Abbe, Hasbrouck, Jewett, I. S. Stone, R. S. Lamb, J. Taber Johnson and Kleinschmidt. See page 245.

Wednesday, May 11.—The President, Dr. Charles W. Richardson, in the chair; over 41 members present.

The Treasurer reported for April: *Received* from assessments, \$12.00; entrance fees, \$10.00; total, \$22.00. *Disbursed*: MEDICAL ANNALS, \$137.20.

Dr. A. F. A. King stated that the Reed Memorial Committee would soon send to the Society documents relative to raising money for the erection of a monument to Dr. Reed. He moved that the Chair be authorized to appoint a committee of three to secure and collect subscriptions for the furtherance of the project. Carried. The Chair appointed Drs. Cook, (Chairman,) Hickling, and Reisinger.

Dr. Chadwick presented a case and specimen: Sarcoma of the thigh.

Dr. S. S. Adams exhibited skiagraphs illustrating a case of Thoraco-abdominopagus. Published in July ANNALS.

Dr. Louise Tayler-Jones read the paper of the evening. Sub-

ject, "A Report of Several Cases of Dysentery in Washington in the Summer of 1903," in which *Bacillus Dysenteriae Shiga* was found. Discussed by Drs. Vetter, Grasty and Acker.

Wednesday, May 18.—The President, Dr. Charles W. Richardson, in the chair; 48 members present.

An appropriation of \$47.50 was made to meet the expense of publication of the constitution and by-laws.

The following cases and specimens were presented:

By Dr. D. S. Lamb: 1. Embolism of kidney. 2. Congenital syphilis. 3. Typhoid and tubercular intestine. Discussed by Dr. Claytor. See p. 270.

Embolic Infarction of Kidney.—The specimen consisted of the left kidney, showing a large and a small infarction of comparatively recent date; also some arterio-sclerosis. The cause of the embolism was not clear; apparently the only possible cause was to be found in the fact that the heart was much hypertrophied; weighed 27 ounces, which was about $2\frac{1}{2}$ times the normal; it was dilated as well as hypertrophied; some fatty degeneration of valves and ascending aorta. No infarction elsewhere than the left kidney. The patient was a laboring man 63 years old; both his parents died of dropsy; his brother and four sisters were living and well. He was in hospital for two weeks before his death; had dropsy of lower limbs and lower eyelids; heart beat irregular and intermittent; pulse varied from 64 to 98 and respiration from 22 to 33.

Dr. Claytor said that the specimens of *typhoid* and *tubercular* ulceration of the intestine were particularly interesting. The macroscopical diagnosis was more interesting and important than that by the microscope. It was often necessary to make a diagnosis at the autopsy between two forms of ulceration. This was difficult until one remembered to look for minute tubercles on the serous side of the intestine; they were present in probably every case of tubercular ulceration in the base of the ulcer on the serous surface. This was an important point in the differential diagnosis. It used to be said that tubercular ulcers extended around the gut, and typhoid ulcers along it, which was in part true. Tubercular ulceration tended to follow the lymphatics. Typhoid ulcers were usually clean and even; tubercular ulcers were liable to be rough and ragged.

By Dr. N. D. Graham: Lukemia. Discussed by Dr. D. S. Lamb. See p. 269.

Dr. Rhett read the paper of the evening. Subject, "Epilepsy." Discussed by Drs. F. P. Morgan, W. L. Robins, Acker, Clark, J. Dudley Morgan, Wilkinson and Anderson. See p. 256.

Wednesday, May 25.—The President, Dr. Charles W. Richardson, in the chair; 45 members present.

Dr. Nash, for the Reed Memorial Committee, presented a report, which was accepted, and the Committee continued. He reported that the Committee had conferred with President Gilman. He was very much interested in the project, and had presided at a meeting held at Bar Harbor last summer for the purpose of arousing public interest. At his suggestion the Committee had met other gentlemen interested in the Memorial, and had formed a corporate company, under the laws of the District of Columbia. The incorporators elected a Board of Managers to collect funds and otherwise direct the affairs of the company. Dr. Gilman was elected President of the company, and General Calvin DeWitt, U. S. A., Secretary.

A letter was read from Mrs. Laura S. Hawkes thanking the Society for its resolutions of respect to the memory of Dr. Hawkes.

Dr. Wells, for the Editing Committee, offered the following resolution: "That the Treasurer be authorized and directed to set apart and pay over from the funds paid by each member such a sum as may be necessary to secure the subscription of the WASHINGTON MEDICAL ANNALS to each member of the Society." Carried.

The following cases and specimens were presented :

By Dr. I. S. Stone : Cyst of kidney. Discussed by Drs. F. R. Hagner and Vale. See p. 271.

By Dr. D. S. Lamb : Osteo-arthritis of knee joint. Malarial spleen. Double ureter. Discussed by Dr. F. R. Hagner. See p. 275.

Case of *malarial spleen*. The section of spleen was shown simply to illustrate the pigmentation found so commonly in malarial poisoning, especially of the chronic form. There was no history of malaria in this case ; the man had had several diseases and finally died of cerebral apoplexy. The liver was also much pigmented.

Case of *double ureter*. Double ureter was occasionally seen ; this specimen was from a dissecting room cadaver ; the man died of tuberculosis. The specimen was removed by a Columbian medical student, Mr. N. D. Brecht. The interest in it mainly was that in operations on the ureter or kidney the fact of double ureter might complicate the case.

Dr. F. R. Hagner said that he was much interested in this case. Casper, of Berlin, had reported a similar one. In his case a stone was situated in one of the bifurcations of a double ureter ; the catheter was introduced without difficulty because it passed up the good ureter ; a mistaken diagnosis resulted. Young, of Baltimore, had a case of suppurative disease of the kidney, in which also there was a double ureter ; here also the catheter was passed without trouble, the urine coming away clear, the catheter having entered the sound ureter, and a mistake in diagnosis resulted.

Dr. Vincent read the paper of the evening. Subject: "Delirium

Tremens." Discussed by Drs. Acker, McLaughlin, Balloch, Magruder, Vale, Motter, LeMerle, Kober, F. R. Hagner, E. L. Morgan and W. L. Robins.

Wednesday, June 1.—Dr. Louis Mackall, Jr., Vice-President, in the chair; 12 members present.

The Treasurer reported for May: *Received*: assessments, \$28.00; entrance fee, \$15.00; total, \$43.00. *Disbursed*: printing constitution and by-laws, \$47.50.

Dr. Hickling, Chairman of the Committee on Entertainment, reported the following receipts and expenditures resulting from the Smoker given in honor of Dr. W. W. Keen by the Medical Society, March 16, 1904. Received from members, \$124.00. Paid Chas. Rauscher, \$111.00, and unpaid expenses connected with Smoker of February 10, 1904, \$5.00. Total expenses, \$116.00. Balance in the hands of the Chairman, \$8.00. He asked that the Society express appreciation to Mr. R. J. Green, of the Georgetown Medical School, who sang and provided piano music for the occasion without expense to the Committee.

The Secretary was directed to turn over to Chairman Hickling, for keeping, the balance of \$8.00, and the Corresponding Secretary was instructed to extend to Mr. R. J. Green the thanks of the Society. The Committee on Entertainment was continued.

The Treasurer was authorized to pay bills incurred in connection with the publication of the ANNALS, approved by the President, during the summer recess.

The Society then adjourned the first session of 1904 *sine die*.

STATED MEETING.

Monday, July 4.—The President, Dr. C. W. Richardson, in the chair; 9 members present.

The applications of the following candidates for active membership were referred to the Board of Censors:

- Anna Bartsch, Howard University, 1902.
- C. Alexander Crawford, University of Virginia, 1897.
- B. Alice Crush, Columbian University, 1894.
- George A. Curriden, University of Pennsylvania, 1892.
- Henry R. Elliott, Jr., University of Virginia, 1895.
- John P. Fillebrown, Bellevue Hospital Medical School, 1889.
- H. Atwood Fowler, Johns Hopkins, 1901.
- Mary Holmes, National University and Women's Medical College of Philadelphia, 1900 and 1901.
- Louise Tayler-Jones, Johns Hopkins, 1903.
- A. H. Kimball, Johns Hopkins, 1902.
- Robert McAdory, University of City of New York, 1897.
- James G. McKay, University of Pennsylvania, 1895.
- James F. Mitchell, Johns Hopkins, 1897.
- Edgar H. Reede, Johns Hopkins, 1902.

Alfred Richards, Georgetown University, 1897.

E. E. Richardson, Columbian University, 1895.

H. H. Stromberger, Columbian University, 1899.

Edgar W. Watkins, National University, 1896.

The Treasurer reported for the first and second quarters of 1904 as follows :

Received : Assessments, \$264.00 ; interest on deposits, \$14.91 ; entrance fees, \$25.00 ; total, \$303.91. *Disbursed* : MEDICAL ANNALS, \$510.28 ; salary recording secretary, \$100.00 ; janitor, \$60.00 ; expenses of recording secretary, \$7.67 ; typewriting, \$7.88 ; printing letterheads, \$10.75 ; 500 constitutions, \$47.50 ; total, \$744.08.

It was ordered that the regular weekly meetings be resumed on the evening of the first Wednesday in October.

The Milk Commission made a report, which was accepted and referred to the Executive Committee for consideration and report. See p. 280.

Medical Miscellany.

Health Department, D. C.—PUBLIC WELLS.—The Health Department has recently analyzed samples of water from 91 public wells. In 8 instances the wells were contaminated and in 11 the water was reported as possibly contaminated. In the other cases there was no evidence of contamination. It should be remembered that the Health Department is still without facilities for making bacteriological examinations of well water, so that the above report is based solely on chemical analysis.

Memorandum showing the relative prevalence of certain communicable diseases during the first six months of 1903 and the first six months of 1904.

DIPHTHERIA.

1903.			1904.		
Cases on hand Jan. 1, 1903...	21		Cases on hand Jan. 1, 1904..	16	
Cases reported from Jan. 1, 1903, to June 30, 1903.....	73		Cases reported from Jan. 1, 1904, to June 30, 1904.....	132	
Cases discharged, recoveries,.....	80		Cases discharged, recoveries.....	120	
Cases discharged, deaths.....	9		Cases discharged, deaths.....	14	
*Per cent. of fatal cases.....	10		*Per cent. of fatal cases.....	10	
Cases on hand June 30, 1903..	5		Cases on hand June 30, 1904,.....	14	
Total cases.....	94	94	Total cases.....	148	148

SCARLET FEVER.

1903.			1904.		
Cases on hand Jan. 1, 1903...	20		Cases on hand Jan. 1, 1904..	34	
Cases reported from Jan. 1, 1903, to June 30, 1903.....	53		Cases reported from Jan. 1, 1904, to June 30, 1904.....	237	
Cases discharged, recoveries,.....	64		Cases discharged, recoveries.....	242	
Cases discharged, deaths.....	1		Cases discharged, deaths.....	7	
*Per cent. of fatal cases.....	01		*Per cent. of fatal cases.....	02	
Cases on hand June 30, 1903..	8		Cases on hand June 30, 1904..	22	
Total cases.....	73	73	Total cases.....	271	271

*The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.

TYPHOID FEVER.

1903.			1904.		
Cases on hand Jan. 1, 1903...	110		Cases on hand Jan. 1, 1904..	47	
Cases reported from Jan. 1, 1903, to June 30, 1903.....	320		Cases reported from Jan. 1, 1904, to June 30, 1904.....	180	
Cases discharged, recoveries,	327		Cases discharged, recoveries	148	
Cases discharged, deaths.....	38		Cases discharged, deaths....	44	
*Per cent. of fatal cases.....	10		*Per cent. of fatal cases.....	22	
Cases on hand June 30, 1903.....	65		Cases on hand June 30, 1904..	35	
Total cases.....	430	430	Total cases.....	227	227

SMALLPOX.

1903.			1904.		
Cases on hand Jan. 1, 1903...	2		Cases on hand Jan. 1, 1904..	3	
Cases reported from Jan. 1, 1903, to June 30, 1903.....	31		Cases reported from Jan. 1, 1904, to June 30, 1904.....	18	
Cases discharged, recoveries,	29		Cases discharged, recoveries	21	
Cases discharged, deaths.....	2		Cases discharged, deaths....	0	
*Per cent. of fatal cases.....	06		*Per cent. of fatal cases.....	0	
Cases on hand June 30, 1903.....	2		Cases on hand June 30, 1904..	0	
Total cases.....	33	33	Total cases.....	21	21

*The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.

—W. C. WOODWARD.

WASHINGTON MEDICAL ANNALS

SYMPOSIUM ON "TUBERCULOSIS."*

THE PREVALENCE OF TUBERCULOSIS.†

By W. C. WOODWARD, M. D.,

Washington, D. C.

Hirsch has estimated that among civilized communities the average deaths from phthisis amount to one-seventh of the entire mortality.

In the United States about 100,000 persons die every year from this disease; in Germany the number is nearly the same; in France, a little below. In Austria there are about 80,000 deaths per year; in England about 60,000; in Italy about 50,000. (Flick.)

Estimates based on United States Census returns give the number of persons suffering from tuberculosis in the United States as 1,050,000, or one-sixtieth of the entire population. (Vaughan, cited by Osler.)

In 500 autopsies on children in Munich, 40 per cent. showed tubercular lesions; in 726 consecutive autopsies at the New York Infant Hospital, such lesions were found in 8 per cent. and in 319 consecutive autopsies at the Babies' Hospital, 14 per cent. (Holt.)

In the District of Columbia during the calendar year 1903, 776 deaths occurred from tuberculosis. This represents 13.05 per cent. of deaths from all causes, and is equivalent to a death rate of 2.629 per 1,000 of the population. Deaths of white persons numbered 355, equivalent to a death rate of 1.733 per 1,000 of the white population, while among the colored there were 421 deaths, representing a death rate of 4.660 per 1,000.

*This series of papers was read before the Medical Society of the District of Columbia, October 26, 1904.

†Synopsis of the paper.

The incidence of the disease is heaviest between the 20th and 29th years of life, inclusive. An analysis of all deaths from consumption, which occurred in the District of Columbia between July 1, 1895, and June 30, 1900, showed that of all deaths which occurred among colored persons during the age period mentioned, 44.20 per cent. were due to tuberculosis, while of the deaths among white persons during the same age period, 35.90 per cent. were due to this disease. Between 10 and 19 years of age, 39.96 per cent. of all deaths among colored persons were due to consumption, and among white persons, 21.73 per cent. In the decade between 30 and 39 years of age, inclusive, 34.87 per cent. of all deaths which occurred among colored persons, and 29.08, which occurred among whites.

While the conditions are extremely unsatisfactory, the figures for the past quarter century, indicate that there has been a diminution of the number of deaths due to tuberculosis, as shown by the following statement :

STATEMENT SHOWING ESTIMATED DEATH RATES FROM CONSUMPTION IN THE DISTRICT OF COLUMBIA, FROM 1876 TO 1902, INCLUSIVE.

Years.	Estimated death rates per 10,000.		
	W.	C.	All.
1876-1880	30.42	63.28	41.27
1881-1885	29.22	67.99	42.39
1886-1890	24.50	57.25	35.35
1891-1895	20.33	48.85	29.57
1896-1900	19.69	50.43	29.34
1901	18.90	51.78	29.13
1902	15.98	42.69	24.26
1903	17.33	46.60	26.29

THE PREVENTION OF TUBERCULOSIS.

By D. PERCY HICKLING, M. D.,

Washington, D. C.

In order to prevent a contagious disease we should not only know the germ but we should know something about its birth, life and means of destruction. The germ or bacillus of tuberculosis has long been known and repeatedly demonstrated, and I believe that enough is known about its production, habits and methods

of destruction to enable any intelligent person to successfully prevent the spread of this disease.

The mistaken belief that the disease is inherited should be eradicated from the minds of all. (While admitting the possibility of inheriting tuberculosis, yet it is so rare that when the disease has been received in this way it is a medical curiosity.) It should also be thoroughly understood that tuberculosis cannot be produced by catching cold, and that no disease can "turn into" consumption; it should also be recognized that there is no "bottle cure," no "whiskey cure" or "alcoholic prevention," and that the disease is not conveyed by the breath. These mistaken ideas are dangerous delusions, and largely responsible for the spread of this disease by teaching a false security and preventing the carrying out of measures which would lead to its extermination. It should, however, be considered as a house disease, and that the severity of the attack depends upon the quantity of the poison (bacilli) received and the susceptibility of the individual, and that one attack does not protect from subsequent infection; also that constant reinfection is often the cause of a fatal termination, and it is the belief of many careful observers that the natural tendency of tuberculosis with proper surroundings and care is toward recovery. Let us think for a moment how the disease is spread. It always comes directly or indirectly from an individual who has tuberculosis and who is usually ignorant and careless concerning the spread of the disease.*

From one suffering from this disease millions of tuberculosis germs are produced and thrown off each twenty-four hours, every one of which is capable of causing the disease in a susceptible individual, and this immense production of virulent and specific germs continues in each patient for weeks, months and years. It is only in the discharges (sputum, pus, etc.) that the germs leave the body, and that each germ will, under proper conditions of dirt and darkness, live for many years. It will be thus readily seen how an ignorant or careless consumptive may infect his beard, hands, lips, clothing, room, eating, drinking and smoking utensils, and, in fact, anything or anybody that he may come in contact with or spit upon. How easy for a susceptible associate to

* The question of infection through foods should not be considered at this time; the efficient means of inspection now generally enforced, the cooking process, if properly carried out, destroy all infection, and it is seriously doubted by competent observers whether tuberculosis infection is caused by animal foods.

become infected. When we look upon this picture the cause of the great white plague is explained, and the wonder is not at its prevalence, but that any escape its ravages.

Now let us look with equal fairness upon the other side and see how its spread can be prevented. There is unquestionably an immunity which exists against this as well as other contagious diseases, but it is evident that this immunity is so uncertain and variable that it cannot be depended upon except in a general way by any person or family. Fresh air and sunlight will kill the tuberculosis germ under favorable conditions in a few hours (from two to six). Disinfectants, fire, boiling water, carbolic acid, bichloride of mercury or formaldehyde will certainly and quickly kill all tuberculosis germs.*

With these potent means at our disposal it now merely remains to intelligently apply them to each individual case and the Great White Plague should disappear from among us. For truly "there is no danger from a consumptive whom we can see and control."

The practical points for prevention, I would suggest, are as follows :

First. All who are by family ties or business association exposed to tuberculosis should endeavor to establish and maintain an immunity against infection ; this is probably best accomplished by regular and temperate lives, good food, pure air and clean surroundings ; this should apply to the working places as well as homes. Alcohol, overwork and dissipation of all kinds should be strictly avoided.

Second. All persons, places and things exposed to infection should come in contact with sunlight and fresh air. This is best done (*a*) by keeping the consumptive, the source of infection, in the open air and sunshine as much as possible ; (*b*) by having the room, bed clothes, etc., sunned and aired as long as practicable.

Third. It is the duty of the physician that all expectoration of whatever nature, from patients under his care, should be examined microscopically for the tuberculosis bacillus. This is necessary not only for early and proper treatment, but that the patient and his associates may be instructed in preventing the spread of the disease.

Fourth. Disinfectants should be used as follows : (*a*) Dis-

* Carbolic acid and bichloride are uncertain and dangerous unless properly used.

infect sputum, pus and all infected discharges with carbolic acid, 1 to 20; formaldehyde, 1 to 500; acid solution of bi-chloride of mercury, or by burning at once. When the patient is away from home Japanese handkerchiefs (paper) and paper bags should be used, or some one of the recognized sputum cups must be used and burned or properly disinfected as soon as possible after his return home. This may be some trouble and expense, but, must be done if life and health are to be saved; this is by far the most important of all the preventive measures. (b) Knives, forks, dishes and drinking glasses should be disinfected after each use by boiling or soaking in formaldehyde solution, 1 to 500 for ten minutes. (c) All washable clothes, towels, shirts, sheets, etc., should either be soaked, before removing from the room, in formaldehyde solution, 1 to 1000, for thirty minutes, or handled and boiled separately from clothing belonging to others. All other clothing should be frequently (once each week) disinfected by fumigation with formaldehyde.

The following general rules should be known and enforced by all when tuberculosis exists in a family :

1. Handkerchiefs should never be used by consumptives.
2. All dressings from tuberculous patients should be burnt at once.
3. Kissing of consumptives should be prohibited.
4. Handshaking with a consumptive should be avoided.
5. The patient should keep his hands and face clean, and the beard should be kept shaved.
6. The patient must sleep alone with window open. Better to sleep in the open air.
7. When accidental spitting occurs on clothing or floor these should be promptly disinfected with formaldehyde solution 1 to 200.
8. Rooms should be aired daily and occasionally disinfected by fumigation.
9. Dusting should always be done by cloths dampened with a disinfectant.
10. Flies should be looked out for.
11. A patient with tuberculosis must not work, as it injures the patient and renders more likely the spread of the disease.

These precautions are certainly simple and easy when the great cost of their violation is considered. I believe that the best way

is to educate *all*, for knowledge is the power which is able to stop the ravages of this disease in a comparatively short time. Surely those who have it should be instructed as to the best means of cure, and to those who do not have tuberculosis this knowledge is necessary to assist in the cure of the infected one as well as to enable them to protect themselves.

THE CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS.

By A. F. A. KING, A. M., M. D., LL. D.,

Washington, D. C.

Life is a perpetual struggle with enemies, animate and inanimate. In past ages armies have destroyed armies; individual Cains have slain individual Abels; and human remains, infant and adult, have hung in the shambles of cannibal markets. So it is today.

But human races, besides killing and eating each other, have had also to contend with ferocious animals—the larger carnivorous vertebrates of land and sea—by which also men have been killed and devoured.

Large numbers of human beings fall victims to venomous serpents. Even today, in British India alone, over 20,000 persons die annually from this cause.

So again, in the past, as at present, parasites feed upon the vitals of man, vampires suck his blood, and his children are eaten alive by rats and mice. Finally, the air contributes its contingent of winged enemies. Children are carried away by vultures and eagles; and hosts of the larger insects—hornets, wasps, bees and flies—have destroyed thousands by their bites and stings. Recently man has learned that some of the smaller insect tribes—notably the mosquitoes—in their struggle for existence and race-perpetuation, feed upon and destroy human beings.

But happily for us the development of human intelligence, and the consequent invention of weapons and methods of defense and protection, have enabled modern man to control, in great measure, these sources of mortality. They still persist on the outskirts of civilization, in the domain of ignorance and barbarism.

All this is the familiar history of the distant and recent past—the history of man's struggle for existence with conflicting agencies.

Now we have to note that during the last century a startling epoch arose in the story of this bitter conflict; an epoch that opened a new volume in the history of human destruction, and lifted a curtain which had hitherto concealed a drama of human slaughter the victims of which far outnumber the other sources of mortality to which I have referred. This epoch arose when with a still further growth of man's intellectual development he became sufficiently intelligent to extend the limited scope of his imperfect vision by constructing a microscope. This revealed to him a new inimical host, an army of pathogenic microbes.

Having defended himself as best he could from his larger and smaller *visible* enemies, he now finds himself confronted with a silent and *invisible* host—invisible to ordinary vision—an enemy that conceals itself in the food he eats, the water he drinks and the air he breathes, which may invade his body before birth and revel in it after his death.

One of these silent and subtle enemies is the tubercle bacillus, against whose fatal ravages the attention of the medical world is now engaged in devising means of protection and defense. To this end are we here tonight, holding our "council of war" against, not an open enemy, but a silent and stealthy army of bacillic "bushwhackers." I have been asked by the Committee to contribute something on the Climatic Treatment of Pulmonary Tuberculosis.

Any systematic presentation of so vast a subject in fifteen minutes being impossible, I can only exploit bluntly one or two leading ideas of my own, which may possibly be of sufficient interest to enlist your attention.

The best climate, by which we really mean, as I understand it, the best *atmosphere* for the *prevention* of pulmonary tuberculosis, is a climate (or atmosphere) that will best secure *pulmonary cleanliness*. Perhaps you will say that this expression, on first acquaintance, at least, *sounds* well; it seems to ring in accord with modern ideas on aseptic cleanliness in surgical, medical and obstetric practice. But the expression *pulmonary cleanliness* has something more than this congenial ring. It presents, I think, a fact of the greatest practical importance, viz: that tubercle ba-

cilli taken in with inspired air will not take root and multiply to any dangerous extent, except in a dirty lung. In clean lungs tubercle bacilli will not flourish.

What does this mean? To illustrate, I may recall the now well established observation that many cases of fatal pulmonary tuberculosis do not *begin* with tubercle, but primarily start as catarrhal or pneumonic processes; and it is in the catarrhal and caseous products resulting from degenerating inflammatory exudates that tubercle bacilli find a nidus—in fact a “culture-medium”—in which they rapidly multiply and thus convert a non-tuberculous case into a tuberculous one. Such a caseous or catarrhal lung may well be termed a dirty or unclean lung.

But leaving out the unclean and dead *débris* of inflammatory processes, we may say that a man with perfectly healthy lungs may become the subject of pulmonary uncleanness from the accumulation of dead, desquamated epithelium cells in those pulmonary alveoli which are *never fully expanded by respiration*. Such unexpanded air-vesicles are never “*washed out*” (so to speak) by the influx and efflux of “tidal air.” The dead epithelial cells, with which they become impacted, remain as a congenial soil for the rapid culture and multiplication of inhaled tubercle bacilli. This is what I mean by a “*dirty lung*.”

Now an atmosphere that will contribute to pulmonary cleanliness is, first and pre-eminently, an atmosphere of diminished density—the rarefied air of elevated regions—in which the individual is compelled instinctively to expand the whole lung by deep and full inspiration in order to obtain sufficient oxygen for his respiratory wants.

The air of elevated regions must also contain a smaller number of tubercular and other microbes than the air in lower regions. Submerged at the bottom of an atmospheric ocean forty miles deep, the air we breathe is loaded with microbic germs, just as the lower strata of aquatic oceans are muddy with sediment while the upper strata remain clear.

Thus in elevated regions, even the unexpanded, and consequently unclean lung, may escape tubercle infection, or receive only so few bacilli that their numbers are kept within dangerous bounds by ordinary phagocytosis. The whole history of pulmonary tuberculosis accords with the view that the uncontaminated and rarefied

atmosphere of mountain resorts and the uninfected (though not rarefied) atmosphere of Arctic regions are practically exempt from this disease, at least among the native born.

Now it is an unmistakable fact that some men live long lives and escape tubercle infection *in whatever climate they may be placed*. Hence the liability to infection depends largely upon the individual himself—and especially upon his respiratory habits—and only indirectly or conjointly upon climate. At the same time I think it is of extreme importance to remember that climate itself is a potent factor in *determining the respiratory habits* of the individual in other ways than by atmospheric density. We all know that a damp and cloudy atmosphere—the sunless skies and melancholy mists of England, for example—are especially conducive to the development of pulmonary consumption. If we ask “why?” it is easy to answer that such an atmosphere has a direct inhibiting effect upon respiration by the *ennui* and mental depression it induces. Such a mental state is always accompanied with *restricted respiration*, relieved at intervals by long drawn sighs. Carried to an exaggerated degree, such mental states almost produce a temporary suspension of respiration, hence the expressions “*breathless anxiety*” and “*breathless suspense*” are not entirely unwarranted.

Under such circumstances the successive links in the chain of events leading to tubercular infection may be set down as follows :

1. A damp and clouded atmosphere produces mental depression ;
2. Mental depression restricts respiration ;
3. Restricted respiration leaves some of the air vesicles habitually unexpanded ;
4. These unexpanded air vesicles become clogged and impacted with dead epithelial *débris*, the lung becomes what I have called a dirty or unclean lung, and in this unclean accumulation, inhaled bacilli find a suitable *nidus* for rapid multiplication and infection of the individual.

There is also another way by which a damp, clouded and depressing climate becomes instrumental in promoting epithelial accumulation in unexpanded air vesicles.

It is that the mental depression produced leads to *vocal silence*. The individual becomes apathetic and moody, inclined to silence, brooding and discontent. Under such circumstances mechanical *vibration* of the air cells—the vocal fremitus—normally produced by speaking, singing, laughing and similar exercises, does not

take place. Such a vibration is one of the natural means by which epithelial accumulations in the air cells become shaken up, loosened and discharged into the terminal bronchioles to begin their upward and outward journey on the waving cilia of the bronchial tubes. With relation to climate, therefore, we discover another chain of events, briefly, as follows: 1. A gloomy climate; 2. mental depression; 3. vocal silence; 4. deficient vocal fremitus; 5. epithelial accumulation and infection, as before explained.

Such we may well conceive is the chain of events taking place among prisoners in solitary confinement, and among animals confined in menageries, great numbers of both of which we know die from pulmonary tuberculosis. Their lungs have become unclean.

If to the ordinary accumulation of daily desquamated epithelial cells we add the still more calamitous accumulation of inflammatory catarrhal products produced by what is called "a bad cold" or an attack of "*la grippe*," then a still more plentiful culture fluid is prepared for inhaled bacilli, and thus a consumptive sometimes dates the beginning of his fatal illness to a "bad cold" which never cleared up—in fact to a condition of *pronounced* pulmonary uncleanness.

As the sewers and gutters in our streets and alleys require to be flushed with water to cleanse them from stagnating impurities, which become food for germs, and as fetid pools of water, reeking with decomposing organic matter on our seashores are cleansed of their filth by the waves of a high tide, so, to prevent the accumulation of epithelial *débris* in the air vesicles forming a culture-medium for tubercle bacilli, we must place the patient in such an atmosphere and surround him with such a climatic environment as will enable him, directly or indirectly, to acquire and maintain the habit of full and vigorous respiration, by which the influx and efflux of tidal air shall *keep clean* "the natural lanes and alleys" of the pulmonary apparatus.

The climatic treatment, when the disease is once established, will depend upon the extent of lung degeneration and incapacity. It is evident that when the lungs have reached a condition of advanced atrophic degeneration, with cavities, fibroid contraction, bronchial dilatation, local emphysema and pleuritic adhesions, the sudden transplantation of the patient from a dense into a *very* rarefied atmosphere, would inevitably lead to painful dyspnoea, pulmonary congestion, with hemoptysis and probably death. The

selection of a climate, therefore, with regard to altitude and consequent air attenuation, must depend upon the amount of good lung there is left for breathing purposes as determined by physical examination of the chest.

Apart from all theoretical considerations, the medical world ought to be old enough in experience at the present time, we should think, to be able to say definitely what is the best climate for a consumptive patient.

If such experience—and especially the more enlightened experience of recent years—teach us anything, it teaches that an outdoor life, night and day, in an atmosphere that is cold and dry rather than warm and moist, free as far as possible from microbic sediments, and with as great a degree of attenuation as the remaining pulmonary capacity of the individual will allow, is the best possible climate for the consumptive patient.

THE SURGERY OF TUBERCULOSIS.

By W. P. CARR, M. D.

Washington, D. C.

The surgery of tuberculosis is a very large field to cover in a ten-minute paper. Tubercular infection may occur in any tissue or part of the body, and may in any situation under certain circumstances be benefitted by some surgical operation or procedure.

In a general way it may be said that tubercular areas should be excised whenever this can be completely done without too great risk to life or to some important function, and that tubercular abscesses should be opened, thoroughly cleansed, disinfected and closed without drainage. But tubercular infections in various parts of the body present such different pictures and require such a variety of surgical procedures that I shall briefly consider this disease in connection with each of the important systems or tissues.

Integumentary System.—Tuberculosis of the skin occurs in four distinct forms. First, a warty, irregular thickening of the derm that is characteristic in appearance but difficult to describe. Second, a circumscribed thickening of the derm and subcutaneous connective tissue, and often of the fibrous sheaths of muscles and

intermuscular septa. This form, when the thickening is great, resembles very closely in appearance a sarcomatous new growth, and I have several times mistaken it for sarcoma until microscopic examination showed its true nature. The third form is tubercular ulcer of the skin, most frequently affecting the scalp, extremities, genitalia or anus. These ulcers are very intractable and do not yield to antiseptics nor to ordinary cautery. The fourth form is the well known lupus.

The diagnosis of these forms of tuberculosis is not very important, as all new growths and intractable ulcers of the skin are usually brought to the surgeon for excision, and complete excision is the only remedy, unless in cases of lupus covering large areas of the face the x-ray be found efficient.

Lymphatic System.—Tuberculosis of the glands usually occurs in the neck or axilla. Tubercular glands of any considerable size should be excised on account of danger of general infection as well as for the local pain and disfigurement they cause.

The operation should be complete or it will most probably have to be repeated, and secondary operations are more difficult. In the neck it is a difficult operation, but not dangerous, and leaves surprisingly little scar if all the infected glands are removed and primary union occurs.

Respiratory System.—Tubercular ulcers of the larynx or upper air passages where they can be reached should, when primary, be thoroughly destroyed by actual cautery. Such ulcers, however, are usually secondary, and reinfection from the lungs then rapidly occurs. Consequently, mild caustics and antiseptic applications give better results. Many attempts have been made to treat tuberculosis of the lungs surgically, but the results have not been encouraging. Amputation of small affected portions of lung, injection of antiseptics into the lung, and compression of the lung by filling the pleural cavity with nitrogen gas have all been tried with some degree of success, but better results are obtained by medical treatment. The opening and draining of large abscesses in the lung is sometimes justifiable from the relief obtained, but can hardly be considered curative. Pleuritic effusions should be aspirated, and when empyema occurs it should be treated by resection of one or more ribs and free drainage. I have seen most marked benefit from this operation, but of course it cannot be expected to cure the lung.

Nervous System.—About the only example of tuberculosis of the nervous system is tubercular meningitis. Surgery, like medicine, has so far failed to cure this disease, though drainage of the cerebro-spinal fluid, by trephining the skull, or by lumbar puncture, has relieved the pressure symptoms in many cases, for a time. Attempts at permanent drainage have been ineffective because deposits of lymph soon shut off the area around a drain in the cranial cavity.

Alimentary Canal.—Tubercular ulcers occur in the mouth and more frequently in the lower rectum and anus. They should be excised and the wound sutured. There is less danger of reinfection when the wound is closely sutured than after cautery, and the result is more certain. Tubercular ulcers of the intestine might in some cases be excised with success if they could be diagnosed and located. But usually it is only when they have perforated or when they are accidentally discovered during a laparotomy that the diagnosis can be made. In many cases they are too numerous and extensive for such treatment.

Tubercular peritonitis, if not too advanced, is usually benefitted and often cured by simple laparotomy. This is probably due to increased leucocytosis in the abdominal cavity following laparotomy.

Genito-Urinary System.—Tuberculosis of the kidney is usually unilateral. The diagnosis is made from pain, tenderness and enlargement of the kidney and from examination of the urine. The ureters should be catheterized in doubtful cases and each urine separately examined. In fact, this should be done in all cases before nephrectomy. The treatment is nephrectomy and excision of the greater part of the ureter. Tuberculosis of the bladder may be confined to a small area or widely diffused. Careful cystoscopic examination should be made. If the infected area is so situated that it can be excised, and the patient's condition warrants the operation, the bladder should be opened and all diseased portions removed or destroyed by actual cautery.

Tuberculosis of the testicle is a grave affection because it usually is secondary to infection of the kidney or bladder. Under such circumstances castration gives but temporary relief, and recurrence is apt to take place in the lymphatic glands of the groin and pelvis.

When, however, the testicle is destroyed or badly diseased it should be removed, and every effort made to eradicate any other

focus of infection that can be discovered. Testicles not badly diseased may be removed in part, or abscesses may be opened, cleansed, swabbed with pure carbolic acid and alcohol and closed without drainage. There is not so much danger of intra-abdominal infection taking place from the testicle as there is that the testicle has been infected from an intra-abdominal or intra-pelvic focus.

The Breast.—Tuberculosis of the breast in the female is not rare. The breast usually during lactation becomes hard, nodular and enlarged. Finally abscesses form and point in several places. This disease demands complete amputation of the breast as a fatal termination is otherwise inevitable.

Bones and Joints.—Tubercular affections of the bones and joints furnish a considerable part of every surgeon's work. Most carious bone is tubercular, and a large percentage of joint diseases. Carious bone, except in the larger joints and vertebrae, should be removed as soon as discovered. Tuberculosis in the larger joints and vertebrae can usually be successfully treated by immobilization and protection, if this treatment is early instituted. Early diagnosis is therefore of the greatest importance. There is nothing new in the treatment of these affections except a greater realization of the importance of beginning the treatment early, and improvements in methods of immobilization. Even when pus has formed in a joint, the latter can sometimes be saved by free incision and drainage in conjunction with protection and immobilization. But if this fails erosion or excision of the joint becomes necessary.

Psoas abscess, in my opinion, should be opened under strict antiseptic precautions, thoroughly washed out and closed without drainage, and the spine immobilized at the same time by a plaster jacket or other suitable apparatus.

SANATORIUM TREATMENT.

BY GEORGE M. STERNBERG, M. D., LL. D.,

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That pulmonary tuberculosis in its earlier stages is very amenable to treatment, and that recovery may occur, under favorable conditions, in a considerable proportion of the cases, has been amply demonstrated by clinical experience as well as by the observations of pathologists; even in cases in which there is a mixed infection with formation of cavities in the pulmonary tissue, a certain number of recoveries may occur. Improvement, more or less permanent, is reported in from 15 to 50 or 60 per cent. of the cases treated in sanatoria located in various parts of the United States and Europe.

The advantages, both to the patients and to the community, of treating cases of pulmonary tuberculosis in sanatoria are manifest and are now generally recognized by the profession. It has also become more and more apparent that the results attained do not depend so much upon climate and altitude as was at one time supposed, and that the statistics of sanatoria located near the sea level and in a somewhat rigorous or changeable climate compare very favorably with those where the conditions are more ideal as to temperature, atmospheric moisture, etc. All are agreed that an essential element of the treatment consists in leading an outdoor life, or at least in having an ample and constant supply of outdoor air. Flick says: "Tuberculosis can be successfully treated anywhere. * * * Life in the open air must mean just what the words indicate. The patient should be in the open air twenty-four hours out of the twenty-four. If it is possible to put him out in a tent he should be put in a tent. If this cannot be done the hours spent in the house must be spent in a room which is well ventilated and in which the windows are always open." This constant exposure in the open air is easier to accomplish in a sanatorium, where patients, properly provided with clothing and warm wraps, may be taught to sit out on verandas in zero weather and to sleep with open windows throughout the year. At the sanatorium, also, the patient is instructed as to the disposition of his sputa, he is kept supplied with suitable food at proper inter-

vals and is under the constant supervision of expert physicians and trained nurses.

In referring to the results of sanatorium treatment I shall first invite attention to the latest statistics relating to cases treated at the United States Army General Hospital at Fort Bayard, N. M. This hospital was established by me, after a personal inspection of the locality, in 1898, and since that time all enlisted men of the Army who give evidence of the tubercular infection are sent there for treatment. During the year 1903 the total number of cases treated at Fort Bayard was 644. The cases are classified as follows: "(1) Cases exhibiting permanent afebrility without tubercle bacilli in the sputum, 95 in all." Of these 18 (18.95 per cent.) are reported as "disease arrested; 73 (76.84 per cent.) as improved and 4 as unimproved. "(2) Cases exhibiting permanent or approximately permanent afebrility with tubercle bacilli in the sputum (pure tuberculosis or a minor degree of mixed infection), 235." Of these the disease was arrested in 4 (1.7 per cent.), 168 are recorded as improved (71.48 per cent.), 59 as unimproved (25.1 per cent.) and 4 died. "(3) Cases exhibiting permanent febrility with tubercle bacilli (mixed infection), 304." Of these the disease is not reported as arrested in any case. 96 cases (31.57 per cent.) are reported as improved and 142 (46.71 per cent.) as unimproved, while 66 (21.71 per cent.) terminated fatally. The surgeon in charge of the hospital remarks that: "The deaths which occur are mostly during the first few months of stay at the hospital or among the cases which are so far advanced that they have only a few months to live, there being at no time any hope of recovery. Cases not so far advanced that they have only a few months to live will, with suitable attention to the ordinary rules of hygiene, have life prolonged for an indefinite period."

"Attention is called to the fact that the 'unimproved' cases are so recorded when the lesion, at the time of discharge or at the making of this report, is not less than at the time of the initial examination. In a large number of these cases the disease has been what the compilers of many statistics call 'arrested,' or changed from an active process to a chronic one. These cases will live in a good climate and under good conditions for a number of years. Many of them have been discharged from the hospital and continue to live in such surroundings. They are at the present time useful members of the communities in which they reside.

"The time required for improvement to become evident is shown in the following table :

	Months.									Average.
	1	2	4	6	8	10	12	14	16	
Class 1.....	21	60	2	6	...	...	...	...	...	2.33
Class 2.....	18	106	20	9	3	...	2	...	...	2.45
Class 3.....	14	57	10	8	...	1	1	1	...	2.60
Total	53	223	32	23	3	1	3	1	...	2.49

"The fact that a large number of patients do not show improvement until the second month of treatment is due to the fact that a majority of them have arrived after a long and fatiguing journey, often from the Philippine Islands, and several weeks are needed for recuperation. Other patients require some little time to become accustomed to the higher altitude and changed climatic conditions.

"The total number of arrested cases, 22, is small. Few of the patients remain until a cure is completed. Many of the enlisted men, as soon as they are discharged from the Army, return to their homes; while others, when they feel themselves able to take up outside work, go elsewhere to complete a cure.

"A large proportion of these men do well, but there is a tendency for other men not yet fit to take up active work to follow their example and leave the hospital at a time when several months are required for treatment before they will be fit to care for themselves. These patients are apt to return for treatment in much worse condition than when they first entered the hospital."

In a recent circular issued by the Illinois State Board of Health I find the following remarks :

"That many of those conditions once regarded necessary can no longer be held so, is shown by a comparison of the results obtained in the treatment of consumption in the so-called 'ideal climates' with the results obtained in the consumptive hospitals in other localities. More recoveries have been shown to have taken place in the Massachusetts State Hospital for consumptives at Rutland, with its rigorous winters, its moderate elevation (1,050 feet), its greater rainfall and prevalence of cloudy days, than at the United States Army Sanatorium at Fort Bayard, New Mexico, where all of the conditions of elevation (6,000 feet), mild climate, dry atmosphere, moderate rainfall and almost constant sunshine are found, serving to indicate that some moisture in the air is perhaps not so injurious as was formerly supposed."

I have not the statistics of the Rutland Sanatorium at hand, but it must be remembered in making comparisons that several factors must be taken into consideration. Soldiers recently returned from a debilitating climate like that of the Philippines, especially if addicted to the free use of alcoholics, are not favorable cases for successful treatment; and as a rule a considerable time has elapsed after the diagnosis is established before they are safely landed at Fort Bayard.

Knopf, in the second edition of his monograph on sanatoria, published in Paris in 1900, gives the statistics of 24 sanatoria in this country and in Europe, and these statistics are the most recent I have at hand. The percentage of cures ranges from 8, at Chestnut Hill, Philadelphia, to 82.9 at Schömborg, in Germany—number of cases not stated. The Loomis Sanatorium is credited with 25 per cent. of cures and 50 per cent. improved; Trudeau's Adirondac Cottage Sanatorium with 20.25 per cent. cured and 30.35 per cent. improved; Bowditch reports the disease "arrested" in 25 per cent. of his cases at Sharon, Mass. Dettweiler reports for the sanatorium at Falkenstein, Germany, 28 per cent. cured or arrested and 45 per cent. improved. These figures probably represent about the average results attained by treatment in sanatoria where outdoor life, generous diet, rest for febrile cases, and constant supervision, with symptomatic medication when necessary, constitute the principal measures relied upon for effecting a cure.

THE APPLICABILITY OF THE GREENLAND FJORDS TO THE TREATMENT OF TUBERCULOSIS.

By FREDERICK SOHON, M. D.,

Washington, D. C.

The tubercle bacilli do not necessarily lead to grave conditions, but it is the resulting mixed infection with pyogenic organisms which brings danger. The indications are to have an environment free of all sources of dangerous extra infection and to secure such other conditions so that there will be nothing to hinder and all to encourage the restoration of a vigorous vital tone by which the disease is stifled and made innocuous.

These indications can be met in perfection in some of the Greenland Fjords. The suggestion of their adaptability to this purpose has nothing strange or untried for its foundation ; it proposes something easily obtainable and better than we have at present—the development to the highest degree of all that has proven good in the rational treatment of tuberculosis.

Our present procedures, if thoroughly carried out, ought to cure a proportion of cases far beyond what we are accustomed to accept as good results. One person in four contracts tuberculosis and one death in seven is from this cause, which would imply 44 per cent. of recoveries. Making due allowance for deficiencies in statistics, it would seem that about one-third of all who contract tuberculosis recover from their infection. The great majority of cases happen under very unfavorable conditions and have a mortality much higher than the average ; therefore, to offset this, we must consider that there is a smaller class comprising slight attacks under favorable conditions that has nearly 100 per cent. of recoveries. The class of cases in the next degree of seriousness may be expected to reasonably approach the same results, if the same factors which easily bring about a cure in the slight attacks are forced, and their effects intensified. Yet the usual return of full recoveries in favorable cases does not depart so much from the above general ratio of 1 to 2 that we can be satisfied with it. Patients can get well here, but there is ever present the greater chance that they might not, so it is worth while to consider the possibility of obtaining perfect conditions to force a cure.

A summer spent in Omenak Fjord or Inglefield Gulf would serve to establish a cure, or ensure its accomplishment afterward, in nearly all cases where the disease is not already completely overbalanced by septic accompaniments.

Three tubercular cases have gone to these places, and in each the cure was prompt and effectual. Two were for 3 months on Commander Peary's vessels, and the third, a well advanced case, was for 9 months aboard a whaler. Some Esquimo brought to this country soon contracted a virulent tuberculosis ; 4 quickly succumbed, 1 still here is uncured, while the only one who went back recovered. One hundred per cent. of recoveries in 4 cases is not conclusive evidence, still, it includes all known cases : So, for additional proof we may be allowed inferences and conclusions from facts bearing thereon.

The natives of northern Greenland do not have tuberculosis, though there has been chance for infection of the tribe, as noted above.

In the treating of tuberculosis the greatest single drawback to gains secured is the continual occurrence of unavoidable exacerbations of a catarrhal, pneumonic, or septic nature. In the Arctic, catarrhal conditions do not occur and septic bacteria are not native.

In Nature's ever beneficent compensation the decreased vitality of the Arctic fall and winter must be more than restored in the months of full summer; the result of this stimulation is apparent in the forcing of all life during the short summer, in the quick recovery of men and animals from the anaemias of the winter, and in the invariable and rapid increase in weight, strength, and health of all who voyage there. Such an exaggerated forcing of vitality as this is exactly what consumptives need.

The government sanatorium in Sweden near the Arctic circle reported in 1903 59 per cent. of recoveries. As these patients were from southern parts of the same country it is fair to expect that the effect of the northern clime would be even more decided if experienced by patients to whom it would be altogether new.

Our days and nights are replaced in the Arctic by the seasons of summer and winter; and this continuous northern summer-day is as far superior to our summer of day-and-night as is day to night. It offers all aids to a cure which are obtainable for the tuberculous in our own country, and much more that can not be obtained here. Patients would be removed from *all* influences which favor an extension of the disease or militate against an improvement, and placed under such conditions conducive to vigorous health as are unequalled elsewhere. Among these are a never-setting sun which uninterruptently imparts energy to force vitality, a sterile and dustless atmosphere, and the entire absence of colds or other ills which occasion a setback.

Even all this would be worthless if it were not obtainable, but, much good use can be made of these regions at the present time.

A small steamer adapted to this purpose can accommodate a considerable number of patients, and, if furnished after the sanitary manner of a hospital ship, with some added comforts which are so easily installed on yachts, would differ from sanatoriums in

nothing except that it would be movable. A cruising about for four months need not be entailed, for, at some places where the characteristic topography is accentuated, the steamer can be brought beside a natural wharfage, and lying in bays, as placid as a mill pond, can fill for the time being all the requirements of a land domicile. On such a vessel, outfitted for the health of the passengers and directed according to their comfort, the time devoted to a cure can be spent more profitably and agreeably than in the backwoods, or on a ranch, or in the usual resorts of consumptives with their depressing suggestions of illness.

I expected the past summer, as you know, to take a party to the North, having an opportunity then presented. Commander Peary kindly tried to aid the matter to a thorough practical beginning by extending the use of a vessel he contemplated sending North in connection with his own work there, but this plan had to be abandoned. The project will be instituted next Spring if a proper vessel can be secured to be ready early enough to take advantage of the whole summer season. As the development of the idea rests upon the favoring opinion of the profession, I note some points on which misapprehensions exist.

The sailing distance from New York to the extreme end of Baffin Bay is about half that between New York and Europe. From the northern railroad connection at Sydney, Nova Scotia, to the Arctic Circle approximates the distance from Boston to Key West, and the trip is made over waters usually smooth.

A voyage to the Arctic is dangerous for explorers, whose aims require them to face whatever may arise; but in summer, when guided solely by considerations of comfort and safety, there is no danger. Likewise there are no harmful exposures to which patients need be subjected, though the experience is that in the North one stands with impunity exposures that at home would result in pneumonia or rheumatism.

If feeling cold were a desideratum one would hardly get enough of it in an Arctic summer to do any good. The Arctic day of months corresponds to our day of hours, and from the zeros of the morning in May there is a constant rise of temperature until past the midday, and then a decline toward the evening in September. During most of this long day the temperature is above the freezing point, and rises in the forties and fifties after the snow melts in Spring and the rocks are uncovered to the sun's heat.

The usual fluctuations in any twenty-four hours do not equal the changes which occur in the single hour following our sunrise and sunset. Maximum and minimum thermometers have recorded toward the close of summer but 14 degrees Fahrenheit difference in a whole week, and day after day goes by in midsummer with a variation of but a couple of degrees. In the fjords, away from the open sea, patients for every hour of twenty-four through consecutive weeks can be out in continuous sunshine and beautiful weather.

The obtainment of proper food in the North is not radically different from the same question here. Tubercular patients could have the same menu they have at home during the winter, when vegetables are from the previous summer and fresh meats are purposely kept some time in storage. Locally can be obtained fish, duck, edible birds and deer. I have observed meat and ripe tropical fruits exposed on deck preserved for over a month. But fresh supplies of all kinds can be obtained, as there is an established steamer communication almost to the end of Labrador, and fishing vessels ply further north. The region is itself a natural cold-storage plant, and with proper storage on a vessel one can have every needed variety of food.

It is difficult to realize that a cure can be secured in a few months, but it is also hard to comprehend the unfamiliar conditions of a strange country. In the Arctic there is a natural forcing of everything that invites nature's cure. Two days sunshine are put into one, with an increase of the rays that influence metabolism, as the Arctic atmosphere does not contain the ingredients which here interfere with the transmission of vibrations beyond the violet. The obscure factors having an influence on well being which we only recognize through their results are all changed in these lands where all natural phenomena are unfamiliar; for instance, the indefinite depressing conditions which precede a thunderstorm are not felt where our lightning is replaced by the aurora. There can be no more healthful place than where there is no putrefaction of animal matter or decay of vegetable substances, as is illustrated in these [exhibited] pieces of rope and pine wood which lay exposed to all weathering influences for thirteen years at Cape Sabine on the ground among skins and refuse, and had not yet begun to rot.

The plain limitations to the utility of these regions do not

depreciate the value of what can be done. For instance, they are of use only during the summer months, but spring is the time that patients most cast about for a desirable place to go, and in summer our health resorts are at their worst as regards contaminations of dust and infecting microbic life.

There is an objectionable feature in that, even if the North guaranteed a cure, it would be open only to the well to do. This must be so if the cost of chartering a steamer adds to the other expenses. The cost should be no more than at first-class self-supporting institutions here, and patients could be taken to the North at ordinary hospital rates if a vessel was once placed on an equal footing with hospitals. Then \$25 per week or \$400 for the four months including June and September would be a possibility.

The cure of tuberculosis must in any event be bounded by the question of dollars, and it can be considered that usually help is most fruitful when extended to him who, when cured, can keep himself cured. Patients with a moderate salary are as helpless as the poor when their earning capacity is impaired by a chronic illness, and they are checked in properly seeking a cure by the expense entailed. Through the conditions in the North one could derive more benefit than could be obtained in a longer time elsewhere, and this shortening of the time required for a cure would make it all the more possible for many more to be sooner restored to a full earning capacity.

Some way should open to permit of a general advance in the utilization of these regions. A hospital ship once dedicated to this purpose would be easily supported by patients, and further, might derive an income from other uses between seasons, and so provide facilities for an increasing number of patients in following years. There is a field here for the hand of philanthropy to begin such a project, for experience and science indicate that favored spots in the North hold the complete essentials to a cure, that they give more surety for a cure, and that more could be accomplished by seeking a cure in the North instead of hoping for it at home.

THE MEDICAL TREATMENT OF TUBERCULOSIS.

By SAMUEL S. ADAMS, A. M., M. D.,

Washington, D. C.

Doubtless it would be interesting to review the history of the medical treatment of tuberculosis, but the enormity of the task would be impressed upon one should he attempt to examine the literature upon this subject. Indeed, the stack of cards in the Surgeon General's library showing the number of articles upon this subject since 1900 is so large that even a review of them would require many days. However, a superficial examination of the older writers convinces us of the futility of the claims of those who are vaunting modern methods.

More than 150 years ago tuberculosis was considered a contagious disease, and, as a prophylactic measure, the Venetians ordered the destruction, by fire, of the clothing and furniture of those dying of tuberculosis. The Sicilians also deserted the tuberculosis patient, and, after his death, ordered the destruction of his clothing.

In the face of this statement, 50 years later, Thomas asserts that tuberculosis is not infectious.

By the early history we find that the disease was treated as an inflammation and various remedies were used for this purpose. The patient was nauseated, bled and cupped for the disease.

If I should attempt to entertain you by the various remedies used in this disease I would be compelled to exhaust the drugs described in the pharmacopœia.

During the past 28 years I have had the opportunity of witnessing the various methods of treatment, many of them lauded as curative and specific, but each, in its turn, has been found wanting. If I should divide this period into periods of five years each, we would find that, during the first five years, cod liver oil, internally and externally, was generally used as a curative measure. This drug was given in increasing doses until the tolerant stomach refused to hold the increasing doses and the skin was rendered so foul that the patient was a nuisance to himself and his friends.

Next came the treatment by insufflation of sulphuretted hydrogen into the rectum. Well do I remember repairing to the bedside of a poor consumptive, in the last stages of the disease,

with an apparatus for the generation and insufflation of this gas. Great hope was held out to him in this supposed curative measure, and at this late date I shudder to think of the suffering that unfortunate man must have endured from the great distention caused by the gas. He would tell me to go on with it, even after his abdomen was painfully distended, and on more than one occasion I have known the gas to be emitted from his mouth in volumes. This treatment was short lived.

During this second period we witnessed the treatment of tuberculosis by the pneumatic cabinet and doubtless some of us will remember how the poor sufferer's lungs were stretched, in the hope of effecting a cure. This method was of shorter duration than some of the others, and the expensive cabinets were not even marketable in the junk shops.

About 1890 we received a "*sure cure*" fresh from the laboratory of Koch. A favored few received the lymph direct, but it was not long before this remedy was found wanting, and even Koch himself finally admitted that it was never intended as a curative measure, but that his friends, in their enthusiasm, had misrepresented his intentions.

About 1895 the treatment by creosote found its advocates, and the patients were now saturated with creosote. I admit that, in the hope of benefiting this class of sufferers, I, too, gave as high as 40 drops of creosote three times a day and urged the patient to take more.

During the present decade numerous remedies, most of them proprietary, the principal of which is Russell's Emulsion, have been placed upon the market as cures for tuberculosis.

From my experience with tuberculosis during the past 28 years, I am prepared to say that I know of no specific for the disease. That we can relieve many of the symptoms by the application of well-known and well-tried remedial agents I will admit, but there is no specific medical treatment.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

By THOMAS A. CLAYTOR, M. D.,

Washington, D. C.

In the brief time which is allotted to each speaker tonight it will be impossible to give more than the merest outline of the subject in hand. Upon its importance there is no need of emphasis, as there is today more interest manifested in tuberculosis than ever before, and it is universally acknowledged that in the early diagnosis lies the victim's chief hope of recovery.

Pulmonary tuberculosis is divided into the acute and chronic forms. Under the head of the acute are placed the pneumonic, the broncho-pneumonic and acute miliary tuberculosis of the lungs.

The acute forms I shall pass without discussion, since their early diagnosis, while of great interest, is not of such vital import, as but little can be done in the way of early treatment to alter the result.

Chronic pulmonary tuberculosis may have an insidious onset characterized by general debility, anaemia and gradual loss of flesh without any definite symptoms.

Of the symptoms which are more usually present the cough is among the first. This cough may make its appearance so gradually and be so slight as not to attract the attention of the patient, who only mentions its existence after close questioning. Again, the cough may be the result of what has apparently been an attack of bronchitis or influenza. The cough is short and hacking at first, but gradually becomes more annoying, is usually worse at night and accompanied by mucous expectoration, which becomes muco-purulent or purulent and may be streaked with blood.

Haemoptysis may be the first indication of pulmonary trouble. The hemorrhage may occur, and often does, in those who have been previously healthy, either after some violent exercise or without any apparent exciting cause. Many of these cases recover.

Osler quotes Ware, that of 386 cases of haemoptysis 62 recovered and pulmonary disease did not subsequently develop.

There are others again who have had a cough or who have

been in failing health for some time without the cause being known.

According to Gee, haemoptysis in a young man is quite sufficient indication for treating him for phthisis, even a few streaks of blood like threads of scarlet silk in the sputa are sufficiently characteristic. In a young woman it is quite different, as women bleed much more easily than men.

It was the belief of older writers that phthisis resulted from hemorrhage into the lungs, so often was it followed by this disease. Physical examination may or may not show the signs of disease immediately after the hemorrhage. Bacilli may be found at once or a short time after, or not at all.

Chest pain is a common symptom. The pain which is more often referred to the supra- or infra-clavicular regions is due to a tubercular pleurisy or to an extension of inflammation from the diseased lung to the pleura.

It must be borne in mind, however, that pain in the chest is due to myalgia caused by the strain of frequent cough, and, personally, I am inclined to the belief that too much weight is apt to be given to this symptom.

Pleurisy with effusion may be the first symptom of phthisis. So often is this the case that our suspicion is always aroused when we detect an effusion, and our prognoses in these cases should be guarded. H. I. Bowditch (Osler) states that of ninety cases of pleurisy with effusion which he followed one third developed pulmonary phthisis.

Dyspnoea may be an early symptom, but is not as a rule very noticeable except when the miliary form of pulmonary tuberculosis complicates the chronic condition.

Among the general symptoms *fever* is the most important. Probably in all cases there is in the early stage of the disease pyrexia. The temperature usually reaches its maximum between 2 and 10 P. M., its minimum between 2 and 8 A. M., so that it is advisable in any suspicious case to keep at least a three-hours chart.

The fever is, as a rule, of either a remittent or an intermittent type, though it may be continued, its cause probably being the presence in the blood of some soluble poison produced by the bacillus (Kidd). Kidd points out that in miliary tuberculosis, uncomplicated by suppuration in the lungs, the temperature is

usually remittent, a fact which would indicate that this was the form of pyrexia peculiar to tuberculosis.

Emaciation, the symptom from which the disease derives its name of Phthisis and Consumption, is constantly present and may be the first indication to be noticed. The existence of high fever causes much more rapid wasting.

Here it may be said that there is no better indication as to the progress the disease is making than the record of the body *weight*.

Sweats, especially in the early morning hours, when the temperature is falling after its evening rise, are very usual when the disease is well advanced, but they may occur in the beginning.

The *pulse* very early in the disease becomes rapid and compressible. Its rapidity seems to depend rather upon the extent and activity of the disease and the strength of the patient than upon the degree of pyrexia; consequently it is a valuable index of the gravity of the disease.

Gastric symptoms are not infrequently the first to attract the attention of the patient. There may be great irritability of the stomach with vomiting or acid dyspepsia.

In women, suppression of the *menses* is commonly noted and *anaemia* and *general debility* are very usual, the latter often to a marked degree, out of proportion to the extent of the disease.

PHYSICAL SIGNS OF PULMONARY TUBERCULOSIS.

Having elicited any one of the foregoing symptoms it becomes the physician's duty to make a careful examination of the chest.

It seems needless to say that this can be done only when the patient is stripped to the waist. It is useless to attempt to discover the very slight alterations which are noticeable in the earliest stages of consumption, through the clothing.

The so-called phthisical chest is suggestive, but tubercular disease is quite as often found in the well formed chest.

Since the vast majority of cases of pulmonary tuberculosis have their origin in the apex of one or the other lung, our attention in making a physical examination is directed principally to the supra- and infra-clavicular spaces anteriorly, and the supraspinous fossae and interscapular areas posteriorly. At the same time this knowledge of the more frequent involvement of the apices must not make us lose sight of a possible basal infection.

It might be well to call attention to the fact that in the majority of healthy individuals, especially in thin subjects, the breath sounds are louder, the expiratory murmur more audible and prolonged, and the vocal resonance and fremitus more pronounced at the right than at the left apex. This difference is thought to depend on the following anatomical facts: that the right main bronchus is wider and more vertical than the left, and that the bronchus to the upper lobe comes off nearer to the trachea, thereby bringing the right apex in closer proximity to the trachea.

Prominence of one clavicle due to a sinking in of the supra- or infra-clavicular space may be noted.

Defective expansion of the diseased side is an early and important sign. This can best be detected by placing the hands upon either side of the chest below the clavicle or by standing behind the patient and looking down over the anterior aspect of the chest. A difference in the amount of motion made by the two scapulae may be quite noticeable also from the back.

The tactile fremitus is increased wherever there is local tubercular growth or caseation and usually also over cavities.

One of the earliest signs to be detected on percussion is a slightly *higher pitch* of pulmonary resonance over the clavicle of the affected side or just above it. As soon as there is consolidation, unless the area is situated deep in healthy or emphysematous lung tissue, impaired resonance or dullness may be noted. Unfortunately, if the tubercles are small and separated by dilated air vesicles, this sign cannot be made out. Numerous small cavities in the apex may also lead to error, as the percussion note in these cases is often normal.

Auscultatory signs are by far the most dependable for the detection of the earliest physical changes in pulmonary phthisis. As to whether the *earliest* alteration in the affected area is characterized by faint or harsh breathing there is some difference of opinion; but probably the majority of cases show the wavy breath sound and prolonged expiration before the feeble breathing. When the stage of feeble breathing is reached it is usually possible to elicit the adventitious sounds by asking the patient to cough. Harsh, interrupted breath sounds are often heard on *both* sides of the chest in neurotic patients who are free from disease. It is common for those who are not experienced to mistake the compensatory puerile breathing of the sound side for a sign of

disease and the suppressed breathing heard over the diseased area for normal respiration.

A most important and by some considered almost pathognomonic, sign is a burst of fine crackling rales heard over one apex upon inspiration. These rales may be heard only during deep inspiration or after coughing, but their presence at any time is very characteristic. As the disease advances the rales become larger and have a more metallic sound and the breathing becomes more tubular.

As soon as there is any consolidation the *vocal fremitus* is usually increased. A *systolic murmur* over the subclavian vessels is considered by some as an important indication of pressure by consolidated lung tissue or the retraction of diseased pleura. No mention will be made of the signs of cavity formation, as they belong to a more advanced stage.

The most important of all signs, and the one which admits of no possible doubt of the presence of tuberculosis, is the finding of *tubercle bacilli* in the sputum. Bacilli may be found before any physical signs can be detected; but the failure to find them, except after many attempts have failed, should not be taken as conclusive evidence that pulmonary tuberculosis does not exist. I fear that too many of us content ourselves with one or two examinations and thereafter sit quietly down with the comfortable assurance that there is no tuberculosis. This is a great mistake, and cannot be too severely criticised. The presence of *elastic tissue* in the sputa is indicative of destructive change going on in the lung, which is, however, not necessarily tubercular. This means of diagnosis is seldom resorted to at present.

The only aid derived from the use of the *x-ray* in the early diagnosis of pulmonary phthisis is our ability to detect a diminution in the excursion of the diaphragm on the affected side. Even this, it is claimed, may be as satisfactorily determined by percussing the lower border of the pulmonary resonance and its descent during inspiration.

As to *tuberculin* for diagnostic purposes, I cannot do better than quote from John J. Gilbride (*Amer. Med.*, 1904, VII, 295). According to E. C. Trudeau (*Internat. Med. Mag.*, Mar., 1900), the tuberculin test proved reliable in most cases, but 30 per cent. are latent tuberculosis and do not give any signs or symptoms. Patients may react to tuberculin, says Madison (*Amer. Med.*,

Dec. 20, 1902), and no evidence of tuberculosis be found at autopsy. He also reported six cases of completely healed tubercle which gave a reaction, while others proved tubercular which did not yield to the maximum dose. Otis reports 60 cases of syphilis in which there was a positive reaction to tuberculin.

From the above it would appear that the tuberculin test is only of comparative value.

There is no condition in which it is more necessary to weigh carefully the *history*, the *physical signs* and the *bacteriologist's report*, not separately, but altogether, before expressing a positive opinion; for while it may mean death to the sufferer if his disease is not recognized early, at the same time it is not so very unusual for persons to be unnecessarily torn from their work, families and friends, and rushed about the world on a mistaken diagnosis of tuberculosis.

In *conclusion* I would say: The diagnosis of pulmonary phthisis should, if possible, be made before there are definite physical signs.

If there seems to be any possibility of tuberculosis the temperature should be taken each day several times between the hours of 2 P. M. and 12 midnight; the weight should be recorded once each week; the sputa should be repeatedly examined for bacilli. If an expert in the use of the x-ray is at hand his aid should be sought. Personally I am averse to the tuberculin test, but know it has many advocates.

CAPITATUM SECUNDARIUM.*

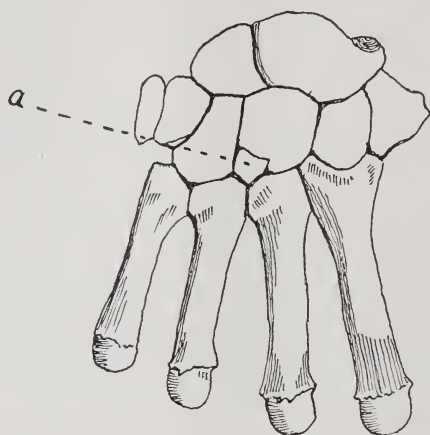
By D. S. LAMB, A. M. M. D.,

Washington, D. C.

In a series of papers published in the *Morphologische Arbeiten* (Jena), of Schwalbe, 1891-5, Prof. Pfitzner, of Strassburg, carefully and thoroughly discussed the human skeletal extremities, both normally and the observed anomalies; the latter in volume IV, 1894-5, p. 347, *et seq.*, with plates XX to XXIV. In a later paper (*Zeitsch. Morph. u. Anthropol.*, 1900, II, p. 77, *et seq.*), he considered elaborately the morphological elements of the skeleton of the human hand.

* Reported with specimen to the Medical Society of District of Columbia, October 12, 1904.

One among the anomalies he described was a separate development of a portion of the *magnum* bone of the wrist, involving the distal ulnar portion, in apposition with the unciform and bases of third and fourth metacarpals. Usually this separately developed ossicle unites with the main bone. The frequency, however, with which the ossicle is separately developed, is shown in the results of the researches of G. Thilenius (*Die ueberzähligen Carpus-elemente menschlicher Embryonen, Anat. Anzeiger, 1894, p. 665, et. seq.*) who in 113 human embryonal hands found the separate development 17 times, or 15 *per cent.* It is only very rarely that the ossicle remains separate; this rarity is shown by the fact that



a-capitatum
secundarium

in 446 hands that Pfitzner examined he failed to find it, and was able to find only one case in literature, namely that reported by Wenzel Gruber (*Mélanges biologiques, VII, 1870, p. 566, et. seq.*); this was in the right hand of a man, and measured 10 x 12 x 13 mm.

Apparently, then, the second case to go on record, is in a specimen of shot wound of the right hand of a soldier, contributed to the Army Medical Museum, by Surgeon Edwin Bentley, U. S. Army (now retired). The soldier was accidentally injured by the premature discharge of a gun, and amputation was done.

In preparing the specimen for mounting Dr. Jacob L. Wort-

man, then the Anatomist of the Museum, discovered the anomaly. The specimen is numbered 9,247, Pathological Series. The ossicle is 8 mm. in greatest diameter.

This ossicle was called by Pfitzner the *capitatum secundarium* (*os magnum* or *capitatum*). Dr. Thomas Dwight, Professor of Anatomy, of the Harvard Medical School, thinks this is the second case reported.

ACUTE MASTOIDITIS AND THE MASTOID OPERATION IN CHILDREN.*

By WALTER A. WELLS, M. D.,

Washington, D. C.

Notwithstanding the voluminous literature to be found on the subject of Mastoiditis, which is every year the occasion of numerous contributions in our medical journals, and of frequent and ardent discussions in our medical societies, strange to say, very little has appeared dealing with the peculiarities of this affection incident to early childhood and of the important modifications which have then to be observed in the operation performed for its relief. The text-books have little or nothing to say on the subject, and I have never yet heard it discussed in this phase at the meeting of any medical society which I have attended, local or national, special or general.

Just why this neglect I am not able to say, and shall leave to others to discover. But that a wide hiatus exists which ought to be covered by a thorough diffusion of knowledge of this particular phase of mastoiditis, much more thorough than I am competent to give, I maintain for the following reasons :

1. Because in childhood, on account of the difficulties of getting a satisfactory history, and especially because of the difficulty of obtaining a good examination always of the tympanic membrane, the physician needs to be put on his guard for the occurrence of this affection and well posted on the various signs which may lead to its recognition.

2. Another reason for a more widespread knowledge of mastoiditis in children, and of the dangers with which it is attended, is to be derived from the general ignorance and indifference of

* Read before the Medical Society of the District of Columbia, October 12, 1904.

parents on the subject of "running ears." The common idea prevailing that it is a good thing for the ears to run and a bad thing to stop the running in all probability had its origin in a faulty application of logic to the phenomena observed in the evolution of the very condition we are here discussing. A child with a suppurative otitis is doing well, when suddenly the discharge stops, and coincident with this stoppage serious complications arise which may prove fatal in their consequences. The non-professional observer naturally attributes the bad turn to the cessation of the discharge, and does not distinguish between a stoppage due to measures which cure the disease and that due to some mechanical obstruction which has but forced the pus back through the aditus into the antrum and adjoining cells.

3. A third reason for the need of more attention to this subject, is that on account of essential anatomical differences in the mastoid of adult and infant, the instruction given for operating in the former might produce disastrous results if applied in the case of the latter. Of this we will have more to say later.

4. Finally, mastoiditis, a serious affection at all ages, is common in children. This might be suspected when we consider the relative much greater frequency of middle ear suppuration in children, due, no doubt, to the prevalence of adenoids, and the various acute infectious fevers—of which otitis media is a common complication—especially measles, scarlatina and diphtheria.

This supposition of the frequency of mastoiditis in children is amply verified by the statistics of such observers as have made a compilation of these cases with respect to the age of the patient. Schwartz's tables showed that in 100 cases, 61, that is to say more than three-fifths, were between the ages of 2 months and 20 years. This accords with an analysis made by Cordoro and Amadoni (*Il Progresso Medico*, Aug. 25th, 1904), of 165 cases of mastoid suppuration observed in the surgical clinics of Parma, wherein it was found that the greatest number of cases occurred between the ages of 10 and 20, and the next greatest number between 1 and 10 years.

In this connection I would like to draw your attention to an article by Babillon, which appeared last November in a French journal devoted to diseases of children (*Rev. mensuelle des maladies de l'enfance*), and which I happen to have seen reviewed in

another French journal, one devoted to diseases of throat and ears (*Ann. des mal. de l'oreille, du lar.*, etc., Paris, 1904, XXX, p. 169). The writer, as a pathologist to an institution in which children were treated, had occasion to make many autopsies on children, and he made a systematic examination of the aural cavities in a large series of cases.

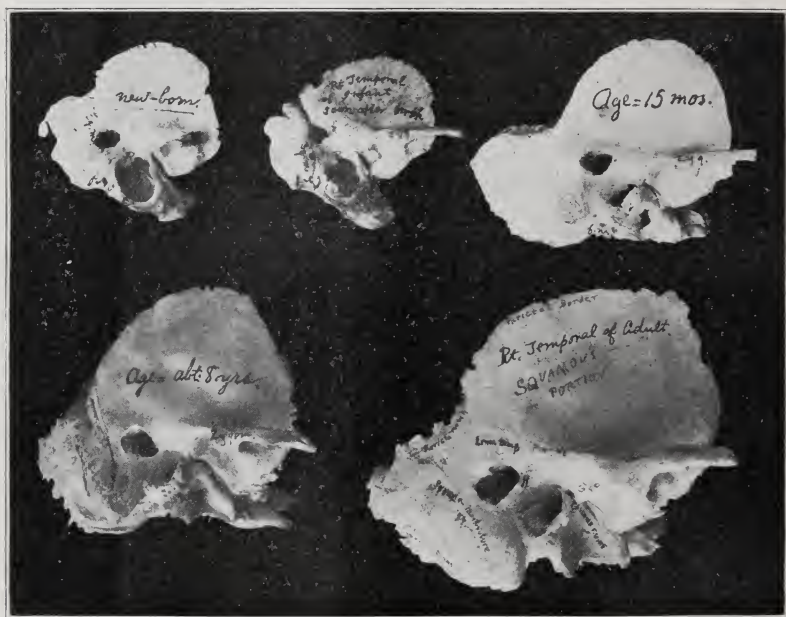
The result of these examinations is certainly astonishing, and the lesson learned should be taken seriously to heart, since it is not mere guess work, but the actual experience derived from the post-mortem table. According to Babillon, in children who die in a hospital in which they are surrounded by other children suffering from various kinds of infections, a suppurative condition of the middle ear cavities is a rule and its absence an exception. For example, in a series of fifteen successive autopsies he found thirteen times the antrum and tympanum filled with pus, without perforation of the drum membrane. In another series the same pathological condition was found five times; and in another of seven, both ears were thus affected in six cases and the seventh case had one ear affected.

The condition was rarely suspected during life, the drum heads not having been perforated and the little patients presenting symptoms which indicated a disturbance of the gastro-intestinal tract. The diagnosis is of necessity difficult, but, according to Babillon, if it be noticed that the patient, instead of exhibiting an intense thirst, as is the case in gastro-enteritis, refuses water as well as all nourishment, and, instead of being restless, is dull and apathetic, and if it further be found that the proper dietetic treatment is without avail, we may very strongly suspect a suppurative condition to exist in the cavities of the ear. An examination of the ear would help much to clear the uncertainty, but, as stated, it is often unsatisfactory in very young children.

Mr. President, the dry details of anatomy have usually very little fascination for a body of practising physicians, and if it were possible to avoid them I should certainly not willingly inflict you. But the subject of mastoiditis and the mastoid operation in children is so intimately bound up in the anatomy of the mastoid that it cannot be intelligently discussed without frequent anatomical references, and it is only, therefore, that my paper may not prove even more tiresome and uninteresting, as it might in the other case, that I have thought it best to invite your attention in

the beginning to a few important practical anatomical points that particularly distinguish the temporal bone of a child from that of the adult.

Having before us the temporal bone of a fully grown individual and another of a child at the time of birth, perhaps the first thing to strike us, outside the difference in size, would be the absence in the child's temporal of the mastoid apophysis. Until about the age of two years there is practically no mastoid process; at two years there is a small, insignificant tubercle which does not become fully developed until the age of three or four years. In the new born, therefore there is, strictly speaking, no mastoiditis nor mastoid operation, but the disease might be called instead an



Temporal bones, showing relative position of trephine opening for antrum at different ages; first, immediately above, but as age advances going back and downward in an arc concentric with margin of bony meatus. Linea temporalis absent or too slightly marked to serve as guide for operation, and Spine of Henle entirely absent, except in specimen from adult.

Foramen of exit of facial nerve (*f*) seen to be on outer surface in first three specimens; open condition of squamo-mastoid suture (sq. m.) especially well marked in second specimen; mastoid process just beginning to form in third specimen. t. r., tympanic ring; R., Rivinian segment.

antritis (or inflammation of the antrum) and the operation done for its relief antrectomy.

The next anatomical feature to strike us as characterizing the infant's temporal would very likely be the absence of an osseous external meatus. We see instead only the wide tympanic orifice opening directly into the tympanum. Its circumference for three-quarters of its extent is formed by the tympanic ring, the other fourth at its upper part being the so-called Rivinian segment. As age advances the tympanic ring develops to form the anterior and lower part of the posterior wall and floor of the canal, the roof and superior part of posterior wall being formed by a growing inward of the so-called *superficies meatus* of the squamous portion at the location of the Rivinian notch.

A third peculiarity, which would attract our attention upon only a casual view of the infantile temporal bone, is the clear marking of the sutures which separate the three distinct parts—the squamous, petrous and tympanic portions—which enter into its formation. Very often in the newborn these three parts can be easily separated one from another without breaking.

On the outer surface, running almost vertically between the squama and the petrous portion, is the squamo-mastoid suture which usually persists sufficiently to be made out throughout life. In the infant it may be quite gaping, and the periosteum dipping down into its crevices. In operating one must exercise considerable caution, therefore, in attempting to separate the periosteum at this location, as the frail bone may be unintentionally penetrated by the rough use of the instrument.

A fact important to be remembered is that in the newborn the facial nerve makes its exit upon the outer, instead of the under surface of the petrous portion of the temporal bone. For this reason we cannot with impunity employ the scalpel or periosteal retractor in this locality.

Looking now upon the inner or cerebral aspect of the temporal, one will note in the case of infants a well marked, horizontal cleft at the lower border of the squama which indicates its union with the petrous portion. In the adult this suture is scarcely visible; in the newborn it is often a pronounced cleft, filled with vascular and connective tissue, constituting, it may be, a dangerous pus channel from the middle ear to the brain.

The manner of the development of the squamous portion

throws some light upon the anatomy of the antrum. At first the two plates of which it is formed are in apposition throughout, but later they separate below, the inner plate tending toward a horizontal direction to meet a similar plate from the petrous portion which extends outward and covers for a little distance the former, their junction forming the petro-squamous suture just referred to. The outer plate of the squama continues its vertical direction, the space between being filled in with spongy tissue. This spongy tissue is most abundant at the back part of the squama, at the level of the squamo-mastoid suture, but extends also forward even into the root of the zygoma. From it are formed the antrum, aditus and the attic. It explains also the presence of cells which are often found just above the osseous canal and forward in the root of the zygoma.

In the newborn and very young children there is but one mastoid cell, the antrum. It is very superficially placed above and behind the tympanum, and connects by a wide canal (the aditus) with the tympanum. As age advances the antrum in the course of development describes an arc about the upper posterior part of the meatus going downward and backward, and at the same time continually receding from the surface. In the newborn it is located just within the posterior inferior end of the squama. The linea temporalis and the spine of Henle being absent, as already stated, cannot be relied upon to guide us to its location; but fortunately we have a valuable landmark in the presence of a number of vascular foramina, situated just above and posterior to the meatus.

This area, when exposed, will appear as a more or less hyperemic area, and will be found, when attacked with the curette, to be soft and friable. This is the area designated by Chipault as the *zone criblée retro-meatique*—the cribriform area—but more commonly spoken of as the *tache spongieuse*, the spongy spot. In the newborn and in children under two years it corresponds very accurately with the location of the antrum.

A knowledge of the anatomy of the child's temporal, besides being essential from a surgical standpoint, is of considerable assistance in understanding the peculiarities which characterize the pathology of mastoid inflammation in children. For example, the fact that intracranial complications are comparatively less frequent, notwithstanding the more open conditions of the sutures,

finds its explanation in the situation of the antrum upon a higher plane than the tympanum, and its freer communication with the latter cavity, whereby drainage through the middle ear into the external auditory canal is greatly favored.

The more frequent perforation of the mastoid cortex, with the formation of fistulae and large post-auricular abscesses in children, is easily explained by the more superficial situation of the antrum and more or less patent state of the squamo-mastoid suture.

The readiness with which infection from the tympanum becomes extended to the outer surface of the mastoid, setting up a periostitis in this region, might be explained either by the absence of an osseous meatus and the direct connection therefore between these two parts, or by the presence of the spongy part referred to, which may act as an intermediary for the propagation of the infective process.

The indications for operation in children are in general the same as for adults, bearing in mind the greater tendency in children to have profound constitutional symptoms from slight cause. A mere periostitis may in a child produce such general disturbance as in adults would occur only in a mastoiditis; and a mastoiditis, such symptoms as in adults would point to meningitis or cerebral abscess. For a periostitis the so-called Wilde incision, a simple incision over the seat of swelling, just posterior to the attachment of the auricle, carried well through integument and bone, is justifiable and is attended with success. If it be, however, a true case of mastoiditis the Wilde incision is useless, because insufficient to effect a cure. A thorough trephining is just as necessary in the young child as in the adult.

This was well illustrated in a case which I saw at the Episcopal Eye, Ear and Throat Hospital in consultation with Dr. Maurice Miller, in which two months previously an operation had been performed amounting to something more than a Wilde incision, inasmuch as curetting had been done, but no connection made with the middle ear. The patient, an infant of 15 months, seemed to do well for a while although the ear continued to run. The latter part of March, about two weeks before the second operation, however, the ear ceased to run, and at the same time the patient's general condition grew worse. He became pale, restless, fretful, and refused nourishment. April 7, a considerable edematous

swelling appeared behind the ears, and the temperature on that and the following day varied from 102 to 104 F. April 9, a typical operation for a child of that age was done; the antrum easily found and perfect connection made with the middle ear. The temperature fell at once to normal, and the general condition began to improve. The mastoid wounds healed rapidly, but the discharge from the ear persisted longer than usual. It finally ceased permanently about May 3.

Another case in which I unfortunately did not get such a happy result, illustrates even more emphatically the necessity of a thorough operation and curetting of the bone in children. This was a colored boy, aged 15, on whom I operated at Garfield Hospital last spring. There was only slight fever, but great pain, especially at night, and tenderness and swelling over the mastoid. The feature of the case was the complete closure of the external auditory canal by swelling, shutting out any view of the drum membrane. I trephined the mastoid and found pus in the antrum.

For a while the patient did apparently very well, but later it was observed that the mastoid wound failed to close and that small abscesses formed in and about the auditory canal. These abscesses were opened from time to time, but it is evident that eventually this patient will again have to be put under an anaesthetic in order that the parts can be thoroughly exposed and curetted.*

While the patient was under observation this summer I had occasion to operate upon another of exactly the same age. The patient, a girl, referred to me by Dr. Bowen, had for the previous three weeks suffered from a fulness and deafness in the right ear, with unusually intense otalgia and headache, but attended with little or no discharge from the ear. The earache grew worse and pain over the mastoid and neighboring region developed. The pain was particularly severe at night. When first seen, August 11, the mastoid was red and tender, especially over the location of the antrum. The drum membrane was very red but not bulging, and showed a

*Since reading article, secondary operation has been performed in this case. The external abscesses in the vicinity of the ear were found to be in direct connection with necrosed bone in the mastoid region. The bone adjacent to the auditory canal was broken down very extensively, and the curetting had to be continued all the way to the tympanum, and the ossicles removed. The wound is at present rapidly filling in with healthy granulations, and the indications point to recovery without further complications.

very small perforation at its anterior inferior quadrant. The temperature was 100 and a fraction.

The patient was sent at once to the hospital, a paracentesis performed, and ice applications ordered. Not the slightest improvement manifesting itself in the course of 48 hours of constant application of the ice bag, I decided to trephine August 16. The antrum was easily found, and contained pus. For the next couple of days the patient suffered some pain and had fever, which was found to be due to a co-existing follicular tonsillitis, and which disappeared when the same was relieved. The wound granulated in this case very rapidly at first, and when apparently almost healed the patient was allowed to return to her home in the country. About a month later the wound having still refused to close completely, she again consulted me, when I found a small sequestrum of necrosed bone superficially located in the wound. Upon its removal and a curettement of the surrounding area, the case progressed normally toward recovery.

In children, because of the difficulty in the way of obtaining a reliable history, and because the constitutional symptoms are so often out of proportion to the local state, it is necessary to very closely observe the physical or objective symptoms which may be present, viz: the condition of the mastoid process as regards swelling, fluctuation and tenderness, the condition of the external auditory canal, the appearance of the membrane, and the character of the discharge.

The following case, which I saw in consultation with Dr. Polkinhorn, is interesting because of the extensive local destruction found upon operation, notwithstanding the complete absence of fever. J. L., aged 4, gave a history of having had a suppurative inflammation of the left ear a year previously, which got well and remained so until about February 1, when a fresh supuration set in. February 13, a swelling was observed behind the left ear, but the patient did not appear to suffer much general disturbance. He was admitted to the hospital February 18, and was found to have no rise in temperature. There was a large fluctuating tumor behind the left ear, tender to the touch. A thick, yellow discharge exuded from the external canal; there was no sagging of the posterior wall of the canal. Operation was performed the same day, assisted by Dr. Polkinhorn. Upon incision over seat of swelling, a large quantity of pus was evacuated.

When the mastoid cortex was exposed, two fistulae were found, one below the other, the upper just posterior to the meatus, leading directly into the antrum. The bone was found necrosed over an area of about one square inch, and the entire tip was broken down and had to be removed. The patient developed no temperature after the operation and made a rapid recovery, the external wound closing in about four weeks, the discharge from the ear having previously ceased.

In striking contrast to this case I could mention that of a child fifteen months old which I saw in consultation with Dr. Sothoron. Here there was high fever and symptoms of a pronounced cerebral type, such as great restlessness day and night, refusal of nourishment, and a condition of apathy at times amounting to coma, associated with insignificant local symptoms. A swelling appeared back of the ear, but it was not edematous or fluctuating, and the discharge from the ear was insignificant. As the condition did not disappear under continuous ice application, it was decided to operate. The mastoid lesion was not extensive. No pus was found, but only a moderate amount of granulation tissue in the antrum. The bone was unusually dense for so young a child. The general condition, which had been so alarming, improved immediately after the operation, and the child made a good recovery.

In most of the otherwise excellent works on otology, very slight attention is paid to the technique of a mastoid operation in children, and one might be led to suppose that the operation, with the exception of one or two unimportant modifications, should be performed in the same manner as is done for the adult. But if we apply the technique of the ordinary mastoid operation to the newborn child, serious, perhaps fatal, mistakes would be the inevitable consequence.

The very initial incision might perhaps have the result of severing the facial nerve, and producing a facial paralysis, because we are directed to make an incision close behind the attachment of the auricle carried vertically downward, boldly through skin and periosteum to the bone. In the newborn, the facial nerve makes its exit just posterior to the middle of the meatus, and not on the under surface of the petrous portion, as in the adult; hence the danger. In the usual mastoid operation, the next step is the forcible separation of the periosteum from the bone by means of

the raspatory. But in the young child great caution should be enjoined in regard to this step, because the squamo-mastoid suture may be open, and the point of the instrument easily thrust through it.

In the adult the practice is to trephine for the antrum just behind the meatus, using the spine of Henle and the linea temporalis as our guides. But in very young children the spine of Henle is never present, the linea temporalis very seldom. If we should depend upon the linea temporalis as a guide we might, in the absence of any ridge in the usual location, light upon the zygomatic process and be deceived into entering the middle fossa of the skull.

In the adult we begin by trephining the bone over an area whose upper limit is on a tangent passing along the upper wall of the external auditory meatus. In the newborn child this line would form, on the contrary, the lower limit of the area which must be trephined in order to succeed in entering the antrum. In the ordinary operation in the adult, after entering the antrum, it is customary, with some operators at least, to follow by opening the other cells of the process; but in children under two years there is as yet no mastoid process formed, and any attempt to extend the operation would probably result in a section of the facial nerve or laceration of the lateral sinus.

Briefly stated, the operation should be performed in children under the age of three years in the following way: The primary incision is made, as in adults, just posterior to the attachment of the auricle, but it should go straight to the bone only at its upper extremity. At its lower end caution must be exercised because of danger of wounding the facial nerve. Inasmuch as in the newborn and very young children there is no osseous canal, and the cartilaginous meatus is applied along its upper wall to the squamous portion of the temporal just above the tympanic orifice, the incision which is made about the meatus will bring the wound in a relatively higher position than is the case in making a similar incision in adults. This fact should be well borne in mind to prevent entering the middle fossa.

There being no spine of Henle and probably no linea temporalis to serve as land-marks, the safest plan is to expose sufficiently the upper and posterior wall of the osseous meatus and search for the so-called spongy spot at a point just above the posterior tubercle

of the tympanic ring. This will be found in children of two years old or under to correspond quite accurately with the location of the antrum. In children a little older we may have to take the upper and posterior walls of the canal as a guide, and trephine a point about one-sixteenth of an inch above and behind the intersection of the tangents to these two walls.

The antrum being superficially placed, the curette as a rule will satisfactorily answer the purpose in perforating the bone. If the bone be unusually hard the chisel or gouge may be used, but of a width not to exceed $\frac{1}{2}$ cm. The strokes of the hammer must be gentle, and the instrument held carefully to prevent slipping, which might produce serious injury in the soft, friable bone in the infant. The antrum being entered, the cavity is carefully freed of all fungosities and necrosed tissue ; but it is usually not needed to curette the aditus as much as in the case of an adult, because this passage is relatively larger and not so likely to become obstructed. There being, as a rule, no supplementary mastoid cells, the operation is now complete, and we do not have to extend the wound downward toward the tip, as we often have to do in the case of the adult. There remains now only to pack the wound lightly with antiseptic gauze and the operation is completed. The after treatment does not materially differ from that in the case of adults.

If it has in reality been a case of acute mastoiditis, and we have not been deceived, as is quite possible in the case of children, in regard to the duration of the otorrhea or into taking an exacerbation of a chronic middle-ear suppuration for an acute case, we may expect a rapid granulation of the wound, and an early cessation of the otorrheic discharge. If the suppurative process, on the other hand, dates back much farther than we thought, there probably exists a condition which will demand something more than the simple Schwartz operation, which is proper only for the acute form of the disease.

Whether in a case found to be chronic we call the existing process affecting the bone an osteo-myelitis with Pauzat, or an osteoperiostitis with Duplay, the practical conclusion is the same, that a cure will probably not be effected until the radical operation shall have been performed, whereby all the middle ear cavities, antrum, aditus, attic and tympanum, are thrown into one, and all granulations and fungosities, carious bone or cholesteatomatous masses if present, thoroughly curetted and removed.

Dr. Butler commended the paper and the specimens illustrating the difference between the mastoid in childhood and adult life. The latter illustrated how easy it was to mistake mastoiditis for subperiosteal inflammation. The mastoid cells were not developed until after puberty; there were no such cells in infants. The prognosis of mastoiditis was more favorable than in adults. The same was true of the hearing. The danger of wounding the facial nerve could be avoided by watching the facial muscles, twitching being a danger signal.

All cases of mastoiditis did not come to operation; according to a recent statement, one-third of the cases belonged to this class. The medical treatment consisted mainly in hot-water douches. Care should be exercised, and it was best for the physician to superintend the operation. It was particularly important that the bag be not elevated much above the level of the ear. He entered a protest against the indiscriminate use of hydrogen peroxide; the bubbles of pus were liable to make their way into places where they were undesirable, and the procedure might do more harm than good. To illustrate the efficacy of medical treatment in some instances he mentioned the case of a young woman who was cured by this means alone, no operation being necessary.

Dr. Dufour thought Dr. Wells was mistaken, when he stated that no text book described the operation on children, for Dench in his text book described it in full and pointed out the difference between the adult and the infantile mastoid bone. The points of difference were that in very young children, the fibro-cartilaginous meatus was attached superiorly to the external surface of the squama. The attachment of the auricle to the skull was at a higher level than the tympanic membrane, therefore the superior part of an incision along this line of attachment would be above the upper portion of the tympanic ring. After the initial incision behind the auricle, and the anterior flap was pulled forward, it would be found that the fibro-cartilaginous canal was attached so firmly, both superiorly and posteriorly, that it was liable to lead us to think that the annulus was exposed. If the operation of opening the bone was performed without having the posterior portion of the annulus together with the posterior bony tubercle plainly exposed to both sight and touch, there was danger of opening the middle cranial fossa.

A safe plan in opening the mastoid bone was to keep the opening close behind and just below the posterior bony tubercle, always having the field of operation plainly in view. The middle cranial fossa lay at different depths in different skulls, but always lay above the posterior bony tubercle. After the antrum was entered, the operation could be continued and adapted to anatomical conditions present. The sutures in the mastoid bone of children were not firmly closed, which fact enabled pus escaping between them from the middle ear, to find its way under the periosteum on the

mastoid, forming a subperiosteal mastoid abscess. In operating on this kind of abscess, the simple evacuation of the pus by an incision was not sufficient, as the bone was often necrosed. The antrum should be exposed, and all necrosed bone removed. Great care should be exercised in making the initial incision not to attempt to go to the bone at a single cut, for the knife might be forced through the suture and enter the brain substance. The parts should be divided carefully until the bone was reached. As to the abortion of a mastoid abscess, he thought it should be attempted before the formation of pus, for it would be useless afterward. Hot antiseptic irrigations of the ear and ice to the mastoid was the accepted method when trying to abort such an abscess; 24 to 48 hours was sufficient to determine if it could be done; if not in that time, the bone should be opened. The after treatment of the operation did not essentially differ from that in the adult. The two great points in this operation were to *know the anatomy and keep the field and landmarks plainly in view.*

Dr. C. W. Richardson said that the paper deserved a full discussion. The subject had been so ably handled that there was but little opportunity for criticism, and he would merely refer briefly to two or three thoughts brought out by the paper. Dr. Wells was mistaken in saying that no text book discussed the differences between the mastoid and the mastoid operation in children and adults. Dench considered the subject thoroughly and fully in two places. Barr, an English author, also gave it quite full consideration; so did Allen in his work on the Mastoid Operation, and many others. At the meeting of the Otological Society last year this subject happened to be discussed at lunch one day, and Dr. Behrends said that in the previous year he had had three cases in which there was subsequent breaking down, making necessary a secondary operation. If the mastoid operation were done thoroughly and precisely, there need be no subsequent discharge from the ear, or trouble. In operating on the mastoid in children, Dr. Richardson always packed the wound firmly; this tended to prevent exuberance of granulation in the deeper parts of the wound. In many cases this exuberance was due to imperfect deep packing. It should be done as thoroughly and as tightly as in the adult, no matter how much pain it caused. Within the last two years he had seen half a dozen cases in children three years old or less, not of periosteal abscess, but of perioritis over the antrum, with much swelling and pain over the mastoid; the symptoms in all subsided under medical and local treatment, without surgical intervention.

Dr. Wells, in closing, said that the hour was so late that he would not prolong the discussion. He had not said that the textbooks did not discuss the subject, but that they did not adequately discuss it. Even Dench's description was brief and wholly out of proportion to the importance of the subject. The phase of the

question which he wished most to emphasize in the paper was the anatomical differences between the mastoid of a child and of an adult. The text-books certainly did not lay sufficient stress upon this subject.

As to aborting mastoiditis, he agreed that all cases did not require operation, and sometimes operation was performed when it was not really necessary. Discrimination in diagnosis would avoid most of the difficulty in settling the question of operative interference.

It was necessary to distinguish carefully between three conditions which might affect the mastoid antrum and cells, viz: Hyperemia, empyema, and a true mastoiditis. He illustrated the difference by mentioning cases of hyperemia, in which there were pain and tenderness over the mastoid process in connection with a simple catarrhal otitis, without any signs of a suppurative otitis. Such cases he put down as hyperemia. Pus in the antrum or empyema was acknowledged to occur in connection with almost all cases of middle-ear suppuration, and this, too, generally subsided without operation. But a true mastoiditis, where the pus originated in the mastoid cells themselves, these were the cases in which operation was unavoidable.

CASE OF FIBROUS TUMOR OF THE BRAIN.*

By D. PERCY HICKLING, M. D.,

Washington, D. C.

W. L., colored boy, age 14, entered the Neurological Clinic at The Casualty Hospital, Washington, September 14, 1904; was picked up on the street the day before, in convulsions, and when admitted he still showed signs of motor disturbances of the right arm; was in a semi-comatose condition, but presented no especially alarming symptoms. I first saw him that evening and found him conscious, although dull and stupid, with a good pulse and respiration; but he could give no account of himself and answered questions with difficulty. He was carefully examined in the clinic the next day, and presented the following symptoms: Was well developed and apparently of normal weight; general appearance dull and stupid; there was right hemiplegia; his gait showed paresis of right leg, which as he walked showed the characteristic dropping of toe and swinging of leg; the right arm apparently

*Reported with specimen to the Medical Society of the District of Columbia, October 19, 1904.

was not affected and the face showed no signs of paresis. His attitude was listless, tongue clean, respiratory system apparently normal; he had good control of bowels and urine; there was a marked difference in the temperature upon the two sides of the body, the left side being apparently slightly above normal (99.2 F.), while the right was cold, much below that of the opposite side (96.4 F.); there was also a difference in the pulse, the left radial pulse being 108 to the minute, full and regular, and right radial pulse 98 and quite feeble; pain and touch sensation normal on both sides; the patient complained of no pain or suffering, and it was quite difficult to get him to answer questions, although he was somewhat brighter than when seen on the previous evening; the bowels moved once and sometimes twice each day; the food well digested; the eyes appeared normal, the pupils were equal in size and reacted to light, and the movements of the lids and eyes were normal. Vision, field and fundus were not examined; hearing was normal; there were no stigmata of degeneration; the urine showed a small amount of albumen but no casts; the tongue was somewhat rough on the left edge as though bitten by teeth; his memory was very poor, and if left alone he was drowsy and would sleep all the time; the superficial and deep reflexes were exaggerated; co-ordination was normal; his appetite was good; respirations 18 per minute.

On the left side of the head was a growth about two inches in diameter, one inch from the median line and two-and-one-half inches above the external angle of the orbit; the swelling was apparently osseous, and a portion of the skull was softened, as though perforated. The diagnosis of "cerebral tumor, probably malignant," of the left anterior and motor area of the brain was made. September 16 the patient was removed to the Washington Asylum Hospital, where examination showed his condition to be practically the same as above noted. September 19, under chloroform, I made a horseshoe-shaped incision around and including the growth; the integument was very thick and vascular; the hemorrhage from which was profuse, in spite of the fact that I had previously applied an Esmarch bandage and used suture ligatures to control the bleeding. The patient's condition was far from being satisfactory, and I knew I should not have the time to make the osseous flap which I had intended. I therefore very rapidly cut away with forceps the center of the mass, which con-

sisted of honeycomb bone, the spaces of which were filled with gelatinous masses of tissue. My object in this was to relieve pressure, if possible, as well as to secure a specimen for examination. The condition of the patient—that of profound shock—was such that I was obliged to rapidly close the wound.

Under prompt treatment he improved so that September 22 he had entirely recovered from the operation, although his general condition was the same as before the operation. I therefore opened up the old wound and made an osteoplastic flap, removing entirely the diseased bone. I found the dura firmly adherent to the bone, which, upon separation, bled profusely, the patient again showed alarming symptoms, and I rapidly made an incision through the dura, completely encircling the diseased area, and found a large mass extending into the frontal region of the brain. Upon introducing my finger I could distinctly feel the brain on one side and the growth on the other. The growth was encapsulated and was nowhere adherent, so that it was easily shelled out with the finger and removed; the space occupied by the tumor was lightly packed with iodoform gauze and the wound closed with drainage. The patient's condition, however, was desperate, and in spite of our best efforts he died about two hours after the operation was completed. The tumor is believed to be an endothelioma, arising from the dura, and weighs about 6 ounces.*

Dr. D. S. Lamb said that the size of the tumor made the specimen exceedingly interesting. It was very unusual to find so large a growth in the brain. One would hardly believe that it could have come from the cavity which it occupied, so great had been the contraction of the tissues around the cavity. To the eye the tumor appeared to be a sarcoma, especially in view of the boy's age, the encapsulation, and other characteristics. It was possible, however, that it was an endothelioma, and this view was held tentatively by Dr. Carroll, the microscopical examination not having been completed. Such growths usually came from the dura, and extended to the bone and brain, and this was undoubtedly the case here. It was interesting that the tumor occupied the Rolandic area, thus affecting motor functions more than others.

Dr. A. F. A. King inquired whether Dr. Hickling had any explanation to offer as to why the pulse rate varied 10 beats on the two sides. Dr. King had never seen or heard of such a case. He asked whether anything was noted at the *post mortem* which

*Microscopical examination by Dr. James Carroll, U. S. Army, showed it to be a fibroma

would explain it, any anomaly of the heart or circulation, for instance.

Dr. Acker asked whether there were any eye symptoms.

Dr. Hickling said that the brain itself, removed afterward, was interesting because it showed that in the two hours the patient lived the brain substance surrounding the tumor had sprung back, apparently to its normal position. The growth did not affect the brain posterior to the fissure of Rolando, but anterior to it the convexity was hardly recognizable.

There were no significant eye symptoms. The case was interesting because there were so few symptoms with such an extensive lesion. The patient had only a slight limp on the right side. The portion of dura excised was adherent to the bone, and was removed with part of the growth. He could not explain the difference in the pulse on the two sides. In transfusing, the vein was found to be so small that it would not admit the aspirating needle. A general *post mortem* examination was not made.

CASE OF CHOLECYSTECTOMY.*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

The patient was a white woman, aged 46. Previous history not significant. Present illness began September 27, 1904, with pain in epigastric region. It was worse the next day, and she called a physician. Noticed a lump in right iliac fossa, which gradually became painful and tender, the epigastric pain, meanwhile, diminishing. Constipated; no urinary trouble.

She was prepared as usual for operation, and an incision about three and one-half inches long was made over the gall-bladder, extending downward. The liver tissue was apparently normal, but the organ extended downward a little more than usual. The gall-bladder was much distended, extending down almost to McBurney's point. A large stone was felt in the cystic duct, near the neck of the gall-bladder; during the delivery of the bladder through the abdominal incision, the stone slipped back into the gall-bladder. The latter was distended about three fingers in breadth, and about five inches in length. After hot pads had been packed around it, it was incised, and a large quantity of a thick, mucus-like substance and the gall-stone were evacuated.

* Reported with specimen to the Medical Society of the District of Columbia, November 2, 1904.

A thick catgut ligature was then placed around the bladder at its neck, and the organ was removed. The wound was partly closed with catgut and silkwormgut and a drainage tube of iodoform gauze was left *in situ*. Lastly, a sterile dressing was applied. There was but little discharge. The woman made a perfect recovery.

[Dr. Thompson exhibited the stone, which was one of the largest of the kind that he had ever seen; and also the gall-bladder.] Although the woman had apparently been ill but a week or two, the stone must have been in the bladder for years. Cholecystectomy was the proper operation in cases like this, where there was suppuration, and the bladder wall was thickened and indurated. Where there was any obstruction to the passage of the bile, however, the surgeon must be sure that it was relieved before excision was performed.

Dr. I. S. Stone said that he had seen the specimen at the hospital. He remarked upon the marked thickening of the gall-bladder wall; it was at least one-fourth inch in thickness, and the whole organ weighed eight or ten times as much as the normal bladder. Dr. Thompson was perfectly correct as to his procedure when obstruction was absent. If jaundice were present, however, indicating obstruction, cholecystectomy would not be the proper operation. In such a case, however, there would have been no hypertrophy of the bladder, and hence no necessity for excision. The case recalled one recently presented before the Society in which an enlarged pancreas caused, by pressure, marked jaundice, and much induration and thickening of the gall-bladder. The patient was much emaciated, and cancer of the liver or stomach was suspected. Here Dr. Stone did not extirpate the gall-bladder, but made a fistula between the bladder and bowel,* and the patient made an excellent recovery. It would have been unwise to have operated upon the gall-bladder only, as it would not have removed the obstruction. There was little danger, in these cases, of hemorrhage from the liver; with a blunt instrument the bladder could easily be separated from the liver without bleeding. After excision the ducts could be opened and examined without fear. He had performed two cholecystectomies within a year, and both operations were entirely successful. He wished to encourage others to try it.

*Cholecystenterostomy.

SARCOMA OF THE ORBIT, WITH REPORT OF CASES.*

By E. OLIVER BELT, M. D.,

Washington, D. C.

Sarcoma originating in the orbit is exceedingly rare. It may arise from the lids, the eyeball, or any of the orbital tissues. Of the cases I present tonight, the first originated in the lower lid; the second, which was an osteo-sarcoma, probably in the orbit or by metastasis; the third in the eyeball, and the fourth in the orbit. Authorities generally agree that sarcomata are rapidly fatal, especially in the young, and when removed are very prone to recur. My experience in these few cases bears this out, except that complete extirpation would seem to give greater hope than is usually admitted, though sufficient time has not elapsed to say that two of these may not recur.

Quotations from the following authors give what may be considered the consensus of opinion in regard to the origin, treatment, and prognosis of sarcomatous tumors of the orbit.

Jackson says: "Sarcoma of the several varieties occurs in the orbit. It may start from the walls of the orbit or from any of its contents, or may invade the orbit from neighboring cavities. The recognized treatment is early extirpation, although the growth is liable to recur. Generally the whole of the orbital contents should be removed, and if the growth is large it will be well on the following day to cauterize the orbital walls with chlorid of zinc paste."

Swanzy says: "The early extirpation of the tumor, with complete evisceration of the orbital contents, affords in general the only prospect—and that a slight one—of saving the patient's life."

Hansell and Sweet say: "Sarcomata may start from the osseous walls, the periosteum, lachrymal gland, muscles, connective tissue, or nerves. * * * They are frequently of rapid growth, with great tendency to spread by metastasis. * * * The treatment consists in early and complete removal, but even then the percentage of recurrence is large."

Fick says: "A genuine orbital sarcoma is a great rarity. Its malignancy is betrayed by its rapid growth, pain and early effect upon health. There is, besides, a disturbance quite out of proportion to the size of the tumor, due, of course, to involvement of

* Read before the Medical Society of the District of Columbia, November 2, 1904.

the muscles within the growth; an innocent tumor merely pushes the muscles to one side, and therefore affects movement only mechanically. The prognosis is bad, and the more unfavorable the younger the patient, and the richer in cells the tumor is."

Case 1. Miss H., white, age 58, was sent to me from Virginia, March 18, 1902, to have a tumor removed from the left lower eyelid. She gave a history of having had an operation on the lid three years previously for what was thought to be a chalazion. About two and a-half years later, a second operation was performed, but the growth quickly returned and rapidly increased. Six months later I found the entire lower lid involved. It was hard and nodular, three-quarters of an inch thick, one inch wide by two in length. The skin was freely movable over the growth, but the latter was only slightly movable and extended somewhat under the eyeball into the orbit. There seemed to be slight ulceration near the caruncle. Vision with + 1. D = 20-100. The upper lid had to be raised to enable the patient to see, as the eyeball was pushed upward under the lid by the growth. Dr. Burnett saw the case, and agreed with me that it was probably a sarcoma, as the skin of the lid was so freely movable over the tumor. Both of us thought the lid might be saved. The patient was admitted to the Episcopal Eye, Ear and Throat Hospital and, under chloroform anaesthesia, I carefully dissected the tumor from the lid, eyeball and periosteum of the floor of the orbit. It seemed to be most strongly attached to the inner canthus, but was as readily removed as though it had been encapsulated. The lid was reattached by sutures. In ten days the patient was able to leave the hospital apparently well. However, as the tumor which had been examined by a pathologist, was said to be a large, round cell sarcoma, the patient was cautioned to return immediately if there seemed to be a recurrence of the trouble. In just a month she came back. The growth had reappeared in the lower lid near the outer canthus and in the orbit just above the inner canthus, where it seemed firmly adherent to the periosteum. The patient was readmitted to the hospital; the very serious nature of the disease was fully explained, and she was told a most radical operation would be necessary to save her life. May 2d, under chloroform anaesthesia, both eyelids were excised and the eyeball was removed with the entire contents of the orbit, including the periosteum; the orbital plate of the ethmoid was found to be broken

down. There was considerable hemorrhage from the central retinal artery, but this was controlled by packing with iodoform gauze. There was no further trouble until the gauze was removed five days later, when there was recurrence of hemorrhage. This was again controlled by packing, after which she made an uneventful recovery and was discharged in about a month. A few weeks ago I received a letter from her niece, in which she stated that her aunt has had no further trouble, and is enjoying splendid health. It is just two and a-half years since the last operation.

Case 2. Mrs. A., white, age 50, came to see me at the Episcopal Hospital February 3, 1902, complaining of having had pain in the right eye for one month. She could raise the lid only with difficulty and could not fully turn the eye up. The eyeball was protruding downward and outward. A firm tumor could be felt in the roof of the orbit. She was frail, and gave a history of having had a malignant tumor removed from the right breast three years before. There had been no return of it. The case was kept under observation until May 2, and as it had not decreased, notwithstanding the administration of the iodides, the patient was anaesthetized and an exploratory incision was made through the upper lid. A firm growth closely adherent to the periosteum was found, and it appeared to extend far back into the orbit. A small portion was removed for microscopical examination. It was examined by Dr. J. B. Nichols, who reported that it seemed to be fibrous tissue, though the main portion may prove to be malignant. May 16, I removed the entire contents of the orbit. The tumor was mainly in the roof, and along the inner wall, cone shaped and involving the orbital wall. As much as possible was removed without entering the cranial cavity. As all the diseased bone could not be removed, only one result was anticipated. She left the Hospital in three weeks, and died four months later.

Case 3. T. W., male, white, age 68, came to the Episcopal Hospital in March, 1904, with the history of having received a blow in the left eye 18 months before. He had been blind ever since, and for the last 3 months the eye was protruding beyond the lids. It seemed to form an irregular nodular mass, ulcerating and presenting the appearance of a malignant growth. April 6, he was admitted to the Hospital, and as the orbital tissues

did not seem to be involved the eyeball only was removed. Six days later he left the Hospital without permission. The eyeball was examined and pronounced sarcomatous. I did not see the patient again until August (4 months after the enucleation), when he came to my office. I then found both lids involved and the orbit filled with new growth. I fully explained the serious nature of the trouble, and told him there was a chance of arresting the disease, but both lids would have to be removed with the entire contents of the orbit. He consented to have this done, and at my request Dr. Monte Griffith performed the operation most successfully, during my absence from the city, August 24. He found the ethmoidal plate perforated and also the floor of the orbit. The patient left the Hospital a week later. He has been kept under observation, and the orbit now presents a very healthy appearance with no sign of recurrence of the disease, though the openings in the ethmoidal and maxillary sinuses persist.

Case 4. J. D., colored, male, aged 24, was brought to my office October, 1904. I found the eyeball protruding and fixed. He was unable to move it in any direction, except slightly upward. Both lids were oedematous, and the lower one completely everted. His vision was 20-100. A firm tumor could be felt above the eyeball, under the roof of the orbit, and extending its full width; another portion could be felt under the eye near the outer canthus. The history was that the trouble had begun suddenly about two months previously with swelling of the lids and protrusion of the eyeball, and marked chemosis of the conjunctiva. The chemosis had subsided; but otherwise the case had progressed steadily, notwithstanding the administration of the iodides. There was considerable pain. Dr. Wilmer saw the patient, and agreed with me that the growth was probably malignant, and thought complete exenteration of the orbit should be done immediately to save his life. He was admitted to the Episcopal Eye, Ear and Throat Hospital, and the operation was performed October 4. Nine days later he was able to leave the hospital. The orbit now presents a very healthy appearance, with no sign of recurrence. The case did not present a typical picture of sarcoma of the orbit, but was so suspicious that we felt it would jeopardize the life of the patient not to immediately operate. Dr. Nichols made the following report of the case:

"The post-ocular tissues consist of mingled adipose tissue, muscle, and fibrous tissue, all densely infiltrated with small, round (lymphoid) cells. Numerous nodules of (apparently) lymphoid tissue are also scattered about the tissue. * * * The condition is more that of an intense infiltration of lymphoid cells into pre-existing tissues (similar to leukemic infiltrations) than of a neoplastic formation. It does not look like sarcoma, although the infiltrating cells are small, round cells."

Dr. Monte Griffith said that it was his good fortune to be present and assist at Dr. Belt's operations. In Case No. 3, he had operated himself, as Dr. Belt was absent from the city. The orbit was completely obliterated. There was much bleeding, but the hemorrhage was stopped by packing, and it did not recur. Recently the patient had visited the hospital and was evidently doing well. There was some question as to whether the trouble was an orbital cellulitis or sarcoma. The globe was removed with the attached muscles. He had not been able to examine it afterwards.

He had seen an interesting case of sarcoma of the orbit last August. The patient was a woman 76 years of age. The growth was so unsightly that she wanted an operation performed for her relief. There had been no sight in the left eye for months, and there was external strabismus. For five or six months she had had a "raised sore" on the left nasal bone. He made an incision and curetted, removing a mass of cheesy material. It was found that the growth extended from a point deep in the orbit to the external sore above mentioned. At a subsequent operation, with Drs. McKimmie and Polkinhorn assisting, he enucleated the eyeball. The orbit was found to be filled with a foul-smelling growth, which was removed. A part of the ethmoid had also been destroyed, necessitating curettement. Four days after the operation he left the city, and on his return found that the patient had left the hospital. A few days ago she was reported to him in good health, but her physician said that he did not think that she could live more than a few months.

Dr. Polkinhorn said that he had seen Dr. Belt's fourth case in August. The patient had presented himself at the Episcopal Eye, Ear and Throat Hospital, and had come under Dr. Polkinhorn's observation. At that time the symptoms were marked, and pointed in every way toward orbital cellulitis. There was proptosis, the eyeball protruding directly forward; marked chemosis of the conjunctiva, and swelling and oedema of both lids. These symptoms were acute; the patient said they had appeared during the previous seven days. He was put under treatment, and when seen four days later, his condition appeared much better. He did not again return to the hospital and was lost sight of. Later, when Dr. Belt saw the case, the aspect must have been very different. From the report of the Pathologist and the

symptoms when first seen, Dr. Polkinhorn thought the case to be one of lymphoid infiltration. However for so large a tumor to have existed for two months without forming an orbital abscess would be rare, if it were lymphoid infiltration.

Dr. Belt, in closing, said that when he saw the patient just referred to there were no signs of cellulitis, and the only possible diagnosis was sarcoma.

CASE OF HYSTERECTOMY FOR FIBROIDS.*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

Matilda R., age 55, bipara, married 33 years; last confinement 30 years ago, normal labor. Menstrual flow afterwards normal and regular until three months ago. Family and previous personal history do not bear on the case.

Present illness dates from three months before entering hospital, September 13, 1904. First noticed a troublesome vaginal discharge and slight pain; the pain she said always came on at 11.30 each day. The discharge remained the same but pain steadily grew worse. As she described it, the pain was boring or bearing down in character and not sharp. No tenderness on palpation. Defecation and micturition not disturbed in any way.

Operated on September 15th. Combined vaginal and abdominal hysterectomy. No abdominal ligatures used. Hemorrhage controlled by packing. A hole was cut in the urinary bladder two inches long, which was closed with No. 2 catgut. Vaginal drainage with iodoform gauze. The first day after operation the temperature reached 103.3; pulse 100. Second day, highest temperature 101.5; pulse 84; complained of severe pain about the incision. Third day, highest temperature 102; pulse 88. Abscess ruptured through abdominal incision discharging three or four ounces of pus, relieving the pain. Fourth day, highest temperature 102.3; pulse 104. Patient felt badly. Fifth day, temperature dropped to normal, where it remained.

The patient remained in hospital for four weeks longer but had no elevation of temperature and made an uneventful recovery.

Dr. Thompson, in further explanation of the case, said that it

*Reported with specimen to the Medical Society of the District of Columbia, Nov. 2, 1904.

was an interesting one, although the tumor itself was not large. The diagnosis was not made before operation ; it was thought that the patient was suffering from cancer. This belief was based largely upon the discharge, particularly its offensive character. He dilated the cervix and proceeded to currette ; masses of broken-down tissue came away, and this tended to strengthen the diagnosis of cancer. He then started to do a vaginal hysterectomy, and still the presence of the tumor was not recognized. The neck and most of the body of the uterus came away in the grasp of the forceps. The remainder of the uterus, with the tumor, still unrecognized, could not be brought down into the cul-de-sac of Douglas, so he performed a laparotomy, and found the tumor lying free, almost without attachment. It was easily shelled out. Not a ligature was used during the entire operation. The remainder of the history has been told above. He had never before seen a case in which a sloughing fibroid so closely simulated a malignant growth.

DELIRIUM TREMENS.*

By THOMAS N. VINCENT, M. D.,

Washington, D. C.

Delirium tremens is one of the most interesting manifestations of the effect of the long-continued abuse of alcohol upon the nervous system. Under ordinary circumstances the unfortunate patient brought into a hospital is the recipient of anything but sympathy and the proper care which his grave condition deserves. He is usually passed along from the visiting physician to the resident, from the resident to an attendant, and eventually is left alone by that functionary to get along as best he can, to wear off his spree. Unfortunately, too many cases subjected to treatment of this kind, being worn out and exhausted, perish through lack of care. A moment's thought of what delirium tremens really is might lead to the better treatment of unfortunate patients of this class, both in hospital and private practice.

It is necessary, in the first place, for the appearance of delirium tremens that the subject should have been addicted to alcoholic excesses for a sufficient time to have allowed the alcohol to pro-

* Read before the Medical Society of the District of Columbia, May 25, 1904.

duce its two effects, sclerosis and steatosis, particularly of the brain, the cord and the nerves and arteries in general, and of those pertaining to the kidney in particular. It is not necessary that the effects mentioned should be visible, but it is necessary that they should be there, whether they give evidence of themselves or not.

It is necessary, furthermore, for the production of the disease that the person liable to be affected should be endowed with a markedly prominent nervous diathesis, or what might be termed a naturally superabundant quantity of nerve force.

Given these two factors, no matter whether the person be of a plethoric, a nervous, a gouty or rheumatic diathesis, it is necessary, in addition to these two qualities, that he be subjected to some shock. It is not necessary that the shock, as such, should be severe. The more severe, of course, the more liable is he to have the disease set up. The less severe the shock, and the more prominent the alcoholic condition, the more liable is he to have delirium tremens, and this shock must not be taken in its ordinary restricted sense. Anything, capable of creating a jar to the already diseased nervous system, can cause the delirium to supervene. Surgical injuries, from the slightest to the most severe, are capable of producing it, and, indeed, it may be said that surgical delirium, with very few exceptions, is nothing more than a manifestation of delirium tremens. Persons who are in a susceptible condition, and are subjected to the action of disease of any character, not infrequently have delirium tremens. Persons who are weakened in body and strength, and are subject to cold, or disease of any kind, frequently suffer therefrom, and debilitated persons, who are just recovering from, or are in the midst of an alcoholic spree, are very frequently the most liable to be the victims of an attack.

As regards the disease, we recognize in the first place its premonitory symptoms: Indefinite in character at the outset, attended with a total disarrangement of the gastro-intestinal tract, marked nervousness as to movements; inability, to a greater or less extent, to sleep; a feeling of dread, of impending calamity; manifestations of delusions, illusions and hallucinations, which under ordinary circumstances may, for the time being, be quite promptly dispelled; a total inability to rest quietly under any circumstances; a desire to be in constant motion; and this

state of symptoms lasting from a period of a few hours up to at least twelve hours or more. Usually we find, after a short period, supervention of the real delirium tremens; an increase of all the symptoms heretofore mentioned, in which marked delusions, illusions and hallucinations, and marked muscular action are co-existent, and an inability to remain quiet, in so far as the brain and muscular system are concerned, for any time; with a characteristic tremor, particularly of the muscles of the upper part of the body, and especially of the tongue, face and upper extremities; marked illusions of hearing, sight, touch and smell; symptoms of extreme dread. At the same time, when properly brought about, there is a remarkable clearness of mind, which in a few minutes is obliterated by a return of the delirium; an attempt on the part of the patient, caused by fear, to do anything, to commit any act, good, bad or indifferent, in order to get away from the evil or the supposed impending trouble hovering over him, and, in this condition, very frequently he commits acts of violence, both as to himself and those surrounding him.

After a time, varying from twelve hours to three, four or five days, this period of full-blown delirium is stopped by a remarkably profound sleep, due to an already exhausted brain and nervous system. From this sleep the patient usually comes clear-headed but weak, exhausted, and as one recovering from a severe, protracted, ordinary illness. On the other hand, if the person afflicted has a debilitated constitution and poor health, we frequently have the violent stage gradually and slightly, as it were by lysis, pass into a stage of typhoid delirium, where the movements of the muscles are not as pronounced as in the active stage, and, by reason of lack of physical force, are but phantoms, so to speak, of their previous conditions. The delusions, illusions and hallucinations of this stage are milder in degree, but partake of the same nature. The muscular movements are also milder. The gastric and all other symptoms, present in the first two stages, are still present, though modified to his weakened and exhausted condition. He loses control in time of the sphincters of the body, the delirium and the mental derangement continue, and we have partial evidence of oncoming coma, which in time gradually increases to that of complete coma, and death eventually ends the scene, due either to the watery compression of the nervous tissues of the body and of the brain, or to the supervention of ce-

rebral hemorrhage as a result of the congestion of the brain. In connection with the symptoms herein noted, one or two prominent factors ought to be mentioned, one of which is the promptness, no matter how severe the condition may be, with which his mind responds to commands or to questions addressed to him. Not only is the mental action prompt, but the physical effort, which may or may not be dependent for its success upon his bodily condition, is likewise prompt, wherein this condition is in marked contrast to that which is the result of disease of the brain itself or of its appendages.

The second factor is the marked fear underlying all the actions in a person so affected. A third factor is a modification of the delirium to the nerves, characteristic of the patient as such. If he be of the educated class, his delirium is thereby modified ; if of the illiterate or semi-educated class, his delirium varies accordingly ; if he is naturally of an athletic build, he acts accordingly ; and if of a delicate constitution, the delirium and its characteristics reflect it. Another prominent factor connected with this delirium is the effect which his occupation and environment have upon him at the time when he is seized. The writer has been struck with the fact that so many persons engaged in intellectual or physical occupations have in delirium tremens continued their actions of the time when they were taken ill. He has known this to be true of men of intellectual pursuits, of musicians, of artisans of all kinds, of professional pugilists, and, in a word, of persons of all degrees and shades of occupation, physical or intellectual.

Another peculiarity of this delirium is that it is remittent in character ; at times violent, at times somnolent. No matter what may be the state or degree between these two extremes, at no time in the delirium is the patient's condition such but that with a sharp answer or command he can be aroused and made to understand clearly and distinctly the questions addressed to him.

At times the delirium is accompanied by a marked rise in temperature, and the rule holds good, here as in other diseases, that the more marked and higher this characteristic, the more dangerous is the situation. We have the pulse proportionate to the temperature, and a characteristic respiration throughout the disease in all its phases.

Another peculiarity in this delirium is the inability to appreciate pain, whether severe or mild. The supervention of this condi-

tion is sufficient, for the time being, to mask it. We find that persons who have been subjected to severe surgical injuries, such as fractures and wounds, which under ordinary conditions would produce a marked degree of pain, when affected with this delirium, do not complain, and it is only with the subsidence of the delirium that the appreciation of pain appears.

With regard to the diagnosis of this interesting condition it may be mentioned that not infrequently it is confounded with *mania a potu* ; or the mania produced by the quick injection of a large quantity of alcohol in a person unaccustomed to it. In these cases the lack of tremor, or the character of the delusions, illusions and hallucinations, the history of the case or mental condition, the temperature or pulse, and the general condition, if correctly observed, ought quickly to enable one to make a diagnosis. The same points ought to enable one to quickly diagnose the difference between delirium tremens and acute mania, or acute uraemia ; as before stated, an examination of the entire body of each and every person affected should be made to note possible wounds and injuries, particularly fractures of the various bones. Indeed, it might be here repeated that the vast majority of cases of surgical delirium, so called, are manifestations of delirium tremens, the result of a shock from a wound or injury to which the person has been subjected, and that the most prominent causes of delirium tremens are probably wounds and injuries of great or slight degree.

With regard to the pathology of this interesting delirium it may be said that no person is affected with it unless he has suffered to a marked degree from sclerosis and steatosis of the general body tissues, particularly sclerosis of the kidney and of the various arteries of the body. On *post mortem* examination, we find a marked congestion of the membranes of the brain and of the brain itself, particularly the latter, and water is found to a greater or less extent surrounding it, causing pressure upon the brain ; a similar pressure on the spinal cord ; and, if this congestion be sufficiently prolonged and sufficiently severe, we not infrequently find rupture of veins and arteries in various parts of the cerebro spinal system and, as a result, apoplexy. It might be remarked that, in proportion to the degree of the delirium, we find at the *post mortem*, in so far as the eye can observe, very few lesions. It is only by a microscopic examination of the brain and

its membranes, and of the nerves and cord, that we find a degeneration, sclerotic or steatotic, of the various ganglionic centers, or the beginning of a marked spinal neuritis.

The prognosis of delirium tremens depends entirely upon the condition of the person at the time he becomes affected. Generally, in a relatively strong person, the first attack is tided over, but in persons, who are victims of exhausting diseases, severe surgical injuries or extensive and exhausting operations, or who are debilitated by reason of long alcoholic excesses, added to advanced years and a poor constitution, we find that delirium tremens has a very exhausting effect and rolls up an extremely high death rate. In fact, between the two extremes mentioned, the percentage of mortality ranges all the way from two to 45 and 50.

With regard to the treatment of delirium tremens, it may be said in the first place that the person affected should be given, as far as possible, absolute rest of mind and body; and to properly carry this into effect, he should be placed in a room or an apartment divested of everything except the necessities to his physical well being, and from which has been removed everything that could assist directly or indirectly to stir up delusions, illusions and hallucinations. How to give rest to a person so affected, if he has recently been subjected to severe surgical injuries or has been obliged to undergo surgical operations, is a question which is taxing in the extreme. He should be put in the care of a cool-headed, well-balanced attendant, who is able to understand the whims and peculiarities of the patient, and who is able to keep him quiet and at the same time humor him as much as possible. The writer is emphatic in his desire to make use of the good offices of a proper nurse under all circumstances, rather than subject the patient, no matter how dangerous he might be, to physical force through the agency of straps, or otherwise, to retain him in his bed.

In addition, and as important as rest, may be mentioned food, for none is in more need of proper nourishment than the victim of delirium tremens, and the food administered should be given under the same general directions as to one suffering from typhoid fever. It should be given according to his abilities to swallow and to retain it. It should be as light and as nutritious as possi-

ble, and at the same time should be pushed to the limit of tolerance, and kept up day and night.

Coexistent with food come the regulation and rehabilitation of an almost destroyed process of digestion. Here we are brought face to face with the proper administration of cathartics, agents mild in character, but efficient and at the same time stimulating the gastro-intestinal secretions. Here the writer wishes to put in a plea for a very useful and yet, strange to say, not very much used drug, capsicum, which should be pushed to the limit of tolerance; and also to suggest the administration pre-eminently of cathartics, calomel, followed by salines.

As to the general and nervous systems, there is nothing to take the place of or equal strychnine, administered hypodermically. By reason of the congestion always present it is a corrective agent to the venous and arterial stagnation. The writer also wishes to mention the extreme utility of digitalis, which is a physiological corrective of the pathological conditions so marked in delirium tremens, and this agent should be pushed as far as possible to its physiological effect.

Owing to the fact that delirium tremens is a condition which will go on and increase, irrespective of the administration of hypnotic agents, etc., the writer is strongly opposed to the administration of opium or its derivative alkaloids. He can see no use and no good in their administration other than to ultimately exhaust the already over-exhausted nervous system, and he thinks that in the majority of cases where opium or morphine is administered to produce sleep, it can have but one effect, to cause exhaustion. The sleep which it is supposed to produce is simply that which would come about anyhow in the period of remission, always noted in the delirium. Provided the heart can stand it and the patient's physical condition is such as to warrant it, the writer has found chloral, properly and judiciously administered, to be an exceedingly effective agent. Due regard must be had to the paralytic effect of chloral on the heart, and when it is necessary to administer the drug it must be guarded in a marked degree by the use of strychnine supplemented with digitalis.

The writer desires to enter a protest against the administration in this condition of the long list of coal-tar hypnotics and their derivatives, and against the administration of so-called hypnotic agents in general, amongst them bromide of potassium; for the

reason that he can not see why these agents, all of them depressing in character, should be made use of so frequently where a disease will run its natural course, according to the physical strength of the person involved, plus the development of his nervous system, individual peculiarities and idiosyncrasies.

In addition, the writer can see no good, excepting in rare cases, in the administration of whiskey to persons in whom the delirium is usually the result of the ingestion of too large a quantity of this same stimulant. It is true that not a few cases of delirium tremens supervene on the quick withdrawal of whiskey in persons of alcoholic diathesis, but still there are so many other agents which are stimulant but non-alcoholic, and produce as good an effect, if not a better, than whiskey, and which at the same time do not, so to speak, add fuel to an already large fire. It is unnecessary to go any further into the discussion of hypnotic agents. It may be said that the less administered is in the long run, the better for the patient.

In certain cases of delirium tremens, provided the physical condition of the patient does not contra-indicate it, the writer is an advocate of the cold bath. He has seen in a few selected cases that the administration of cold water, has been productive of excellent results, but when made use of in a typhoid condition he finds it a very dangerous procedure. We find in certain cases of delirium tremens the presence of convulsions, and this condition must be treated in the same way in general as those which result from uremia, by sudorifics and chloral.

The writer desires just here to state that it is a pretty well established fact, that there can hardly be a case of delirium tremens unless the person so affected has in a marked degree sclerosis of the kidney, and such a thing as a case of real delirium tremens in a person suffering from parenchymatous nephritis is practically unknown.

The writer has seen some remarkable recoveries in persons who we might think could do but one thing, perish, through the hypodermic injection of digitalis, and he must say, notwithstanding a few statements made heretofore in this paper, that there have been wonderful cases of recovery through the hypodermic use of whiskey.

In conclusion, the writer wishes to make a plea that delirium tremens may be regarded as a manifestation of chronic alcoholism,

marked in character, and of such a degree that a person may be said to have his vitality greatly reduced, his ability to resist disease markedly diminished, and, by reasons due to alcoholic causes, to have his life span markedly shortened. The writer has never seen a person attacked in this way who was anything but an easy prey thereafter to diseases of all kinds and descriptions, and who, in addition, was not, when examination was made, found to be a victim, in a more or less marked degree, of fibroid kidney.

Dr. McLaughlin said that four points in the treatment should always be borne in mind: 1. Isolation; 2. Stop the alcohol; 3. Nutritious food; 4. Treatment of symptoms. When Dr. Vincent mentioned digitalis, Dr. McLaughlin thought he was going to speak of the old method of giving heroic doses by the mouth. Digitalis was useful when indicated. One should treat the patient, not the disease.

Dr. Balloch spoke from a surgical standpoint. Delirium tremens was a serious complication, especially in accident cases, fractures, dislocations, etc. In most cases, the history put the physician on his guard; but occasionally after operation the patient unexpectedly went into a state of low, muttering delirium, the tremor of which indicated delirium tremens. The treatment was a serious matter. Every case must be treated on its own merits. Withdrawal of alcohol sometimes did harm; in some cases it should be continued in limited doses. A nourishing diet was the most important factor in the treatment. He had given paraldehyde in some cases to good advantage.

Dr. Magruder emphasized the danger of giving opium or its derivatives in these cases. The patient often asked for them and the family backed him up; but experience showed that these patients stood it badly. He could recall half-a-dozen instances in which it caused death. Wood quotes a case showing how small a dose may prove fatal. A man in Washington died after an injection of $\frac{1}{2}$ of a grain. Dr. Magruder commended chloride of gold and sodium as an efficient remedy. There was really more in the so-called gold cures than the profession had been willing to admit. Its action would bear more careful study. Bartholow recommends it highly; says that it is an alterative, antispasmodic and nerve tonic. It produces a feeling of well-being and stimulation. Dr. Magruder frequently gave it with strychnine to good advantage. He commended also the bromides and chloral, 20 grains of the former and 10 of the latter every one or two hours. Ammonia, and other stimulants could also be given if indicated. Over 30 grains of chloral was rarely necessary. Stop the alcohol at once, depending for stimulation on strychnine, etc. Digitalin was so unreliable that he did not use it. He commended the other treatment outlined by Dr. Vincent.

Dr. Acker asked how a remedy like chloride of gold and sodium could cure an acute condition like delirium tremens.

Dr. Magruder replied that he gave it after the patient had been quieted.

Dr. Vale related the case of a fracture of both bones of each leg below the knee, which was brought to Providence Hospital in 1893, while he was resident physician there. The man had been drinking, and there developed a violent delirium, which, in the absence of any quieting effect from bromides, chloral or hyoscine, necessitated strapping him to the bed. He literally shook himself to death. Dr. Vale had been tempted to give a hypodermic of morphine, but was deterred by the bad record the drug had made in the hospital in the treatment of alcoholic cases. In such a case as this, the relation existing between traumatic delirium and delirium tremens afforded food for reflection.

Dr. Motter said that he had been studying digitalis and its preparations for fifteen years, and was much interested in the comments on the drug. His preceptor, in Philadelphia, had abandoned the galenical preparations altogether, relying entirely upon Merck's German Digitalin. It was not digitalin pure and simple, but was very reliable if the prescription was properly put up. He doubted whether anyone here had used digitalin in as large doses as are used there: one-fourth to one-half grain every four hours, carefully watching the effect. This dose sometimes caused great anemia of the brain, which could be offset by giving aconitine, veratrum viride, or a similar drug. He suggested that this preparation be tried in the above-mentioned doses. He had experienced difficulty in getting it properly dispensed in this city, however, and for the last two years had used the granules put up by the Harvey Co., of Saratoga, and had found them reliable.

Dr. Le Merle said that he treated four or five cases weekly at the Emergency Hospital and that he found each case a case unto itself. He had come to the conclusion that large doses of digitalis were contra-indicated in the greater number of cases, and he depended mainly on sodium bromide, in 30-grain doses, together with tincture of capsicum, 8 drops; tincture of digitalis, 4 drops, and spirit of mindererus, 4 drachms, every three hours. If this did not quiet the patient, hypodermic injections of hyoscin hydrobromate in 1-100th grain doses were given, as required. He said, in regard to diet, that the patients, as a rule, were suffering more or less from an irritable stomach and a complete anorexia, and refused food; therefore the doctor placed them on a liquid diet, which was gradually increased as the stomach tolerated it, and as the appetite returned a more liberal diet was given.

Dr. Kober believed that delirium tremens was an evidence of malnutrition. The malnutrition was due to the fact that when there was present in the stomach 20 per cent. or more of alcohol there was no digestion; hence, feeding the patient was of the

utmost importance in treatment. The chronic effects consisted in an increased growth of connective tissue throughout the body and degenerative changes. Before this was apparent, signs of mental, moral and physical retrogression had appeared. It was remarkable that delirium tremens was not more frequent, when we consider that the nerve cells are the most important in the body, and that they are more or less constantly in need of nutrition in alcoholics. The affection is a cry of the nervous system for better nutrition, and we should feed the patients rather than depend upon over-medication. Give them strong soups, eggs, milk, farinaceous food, etc., remembering always that the proprietary beef preparations were useful as stimulants but were not food, and should be used with caution. Hygienic and dietetic treatment, with good nursing, should be given preference over medication.

Dr. F. R. Hagner asked whether any member present had used normal salt solution by hypodermoclysis in these cases. It was indicated when the kidneys did not act well, and there was albumen or blood in the urine, as it undoubtedly flushed out the detritus.

Dr. E. L. Morgan said that among certain African tribes murder, drunkenness and delirium tremens were thought to be caused by an evil spirit. In the West Indies, men working around distilleries, inhaling the fumes of alcohol became intoxicated; in fact Dr. Frederick Y. Roberts, in his work on the Practice of Medicine, also mentions inhalation as a cause of alcoholism. Dr. Morgan had used tincture of digitalis, in the treatment of delirium tremens. What he wished to lay particular stress upon, was *unreliability as to its strength* as dispensed in this city. On one occasion he prescribed a tonic in teaspoonful doses, and also the tincture of digitalis in ten drops doses three times a day. He did not see the patient (a man) for two weeks, during which the drug clerk came to the doctor in great alarm, stating that the patient had been taking teaspoonful doses of the tincture of digitalis three times a day. This man's case, indicated a remarkable tolerance of the drug, and that we give too small doses, or else a weak and worthless preparation. This prescription was put up by one of the leading drug stores.

Dr. W. L. Robins had seen patients benefitted by hyoscin hydrobromate, 1-50th grain, with two drachms of paraldehyde, the latter remedy producing a prolonged effect.

Dr. Vincent, in closing the discussion, said that he had used the bromides alone and in combination, but they were, as a rule, too depressing, and he got better results without them. In connection with Dr. Vale's case he related the case of a man who was so wild that he had to be put in straps; he was dead three hours afterward. The disease could not be treated according to

any one stereotyped rule; each case must be judged and treated on its own merits. Chloral was the best single drug. He had discarded the coal-tar products. Female patients gave the most trouble, the delirium taking the pathetic form. He thanked those who had participated in the discussion; he had learned much from what had been said.

CASE OF BERI-BERI.*

By JOSEPH S. WALL, M. D.,

Washington, D. C.

The crowded condition of the program of the society prevented me from presenting this case some weeks earlier, and the patient has shown such rapid improvement during this time that many of the prominent symptoms of the disease have now disappeared.

Mr. T., a young colored man. His family history is negative. He enjoyed perfect health up to the time he went to Cuba, in 1898, in the Quartermaster's Department of the Army, where he was employed until 1903. Has resided in Cuba ever since the war with Spain, and for one year past has been employed as foreman of the centrifugal apparatus in a sugar mill, located on the north coast of Cuba. While with the army he had several attacks of malarial fever, sometimes of sufficient severity to confine him to bed.

During the past year has had two attacks of malaria—one in January, and the last about ten days after the invasion of his present malady; but in the interval he had been entirely free from malarial symptoms. As foreman of his part of the mill, he has once each week to supervise the cleaning of pans and utensils with muriatic acid. These pans are made of cast iron; lead is not used in any form in the apparatus or otherwise.

He has always been a temperate man, and for over a year past has had *no* liquor whatsoever.

He was enjoying the best of health and was in fine physical condition up to August 1, of this year.

He first noticed numbness in his feet, as if they were "asleep," but no pains. Shortly thereafter he had difficulty in walking. He

* Reported, and patient exhibited to the Medical Society of the District of Columbia, November 2, 1904.

kept at work, but his condition gradually became worse, until in less than two weeks after the invasion he was compelled to take to bed because of his increasing helplessness.

A few days before he took to bed *swelling* appeared in both legs, as high as the knees. The swelling progressed, reaching its height in about seven days, and is described by the patient as being *tremendous*, his legs being *twice* their natural size.

This oedema moderated somewhat after he had been in bed for some time, but was present as high as the lower part of the knee when I first saw him, in Washington.

Before he went to bed he had considerable *dyspnoea*, especially on walking and particularly on using the *stairs*, which was also difficult because of the helplessness of his legs.

About August 24 his left *thumb* became affected—he had “thumb drop”—and shortly thereafter the right thumb followed suit.

The extensors of the fingers and of the wrists were involved to a less degree.

There was no oedema in the upper extremities. Outside of his heart weakness, he showed but few symptoms other than outlined above. There was no fever excepting during the attack of malaria lasting three days, and evidently an intercurrent affection.

While he was ill he was seen and treated by a Spanish physician employed by the company, who saw him several times a day up to the time of his departure from the island.

His diagnosis was “heart disease,” with resulting dropsy.

From about the middle of August up to September 14, when he landed in New York, he was practically helpless, and was carried aboard ship in a chair, while his removal from the cars to his home in this city was accomplished in much the same manner.

Pain was not marked throughout his illness, but more of a soreness, especially in the muscles of the calves.

Of great interest is the fact that one other employé of the works was at this time affected with loss of power in the legs and oedema of the legs, and was confined to bed when our patient left the island. This man had symptoms identical with Mr. T., and was likewise *not* addicted to alcoholics.

A *third* employé was also similarly affected and took to bed because of oedema and loss of power in the legs. He was still in

bed and under treatment when our patient returned home. The last time Mr. T. saw him, he was hobbling around with a stick, and while our patient was confined to bed the attending physician told him that his colleague was in a similar plight.

All *three* of these men were, it is seen, affected at about the same time, had identical symptoms, and the removal of this patient from the Island precludes the possibility of knowing if there were any further cases of like nature.

One of these men ate at the same table with Mr. T. They slept in separate rooms. Their *food* consisted of rice, codfish, salt beef, fresh fish always once and very often twice a day. They had some fresh vegetables, such as lettuce, and occasionally canned vegetables.

The works were located in the lowlands on rather swampy ground, in proximity to a small river. Their drinking water was from a dug well and was good in character.

When I first saw him, the night after his arrival from Cuba, I found him sitting helpless in a chair, unable to even rise without assistance. Walking was impossible. His legs were swollen as high as the knees and pitted on pressure. It was not the soft, easily pitting oedema, such as we see in cardiac and renal disease, but more of a brawny oedema, in which the impression of the finger was left only after deep pressure.

There was tenderness over the muscles about the shin as well as over the muscles at the back of the leg. Ankle drop and ankle clonus were manifest. The loss of knee jerks absolute. The pupils were normal, reacting well to light.

The heart was enlarged, the impulse not visible, but felt at the nipple line. There were no murmurs, but the heart sounds had a foetal rhythm, the long and short pauses seeming of equal length. The symptoms were those of cardiac dilatation. The pulse was 124, small and soft in character, and has never fallen below 100 since he was first examined.

It will be noticed as he takes his seat on the platform that he shows the characteristic "steppage" gait. His symptoms have cleared up so well that he now shows evidence of the disease only by his gait, by the absence of the knee jerks which are now lost, as you see, and by the cardiac weakness which is still pronounced.

Dr. Nash said that he had seen twenty-three cases of beri-beri. The symptoms were very much like those presented by Dr. Wall's patient, except that ptyalism was a prominent feature. He did not doubt, however, that Dr. Wall's case was one of beri-beri.

Dr. E. F. King said that while living in Hawaii he had some 2,500 Japanese under his care, and among them many cases of beri-beri or *kakke*, as they call it, occurred. In some instances it was difficult to determine whether a paralysis following typhoid fever was from a neuritis due to the fever or a concurrent beri-beri. He saw both the wet and dry forms. The dry form patients recovered, as a rule, even after weeks of helplessness. The wet form was more fatal. The feet and legs swelled, then came ascites and finally the lungs filled up. In many cases death came suddenly, and men who had worked in the fields during the day were found dead in their bunks the next morning. There were a number of such deaths during the epidemic of black plague, and it was a relief to him to see the white froth oozing from mouth and nose, showing that he had beri-beri and not the plague to contend with.

The cause of the disease among the Japanese was not definitely known. Some laborers had the disease in mild form when they arrived in Hawaii, and it might have been caused by eating old rice in their native country. But many cases developed in laborers who had been in Hawaii for a long time, and their rice was grown in the neighboring valleys and was fresh and good.

The treatment employed was a change of surroundings combined with the use of tonics. On the plantation were six camps at various elevations and patients attacked on one level were changed to another. A bread-and-meat diet was substituted for rice. Under this treatment most cases did well. A remedy much prized by the laborers themselves was a mixture of magnesium sulphate and tincture of nux vomica.

Dr. Ruffin said he was much interested in the patient presented by Dr. Wall. He thought Dr. Wall had clearly made out the diagnosis. The suggestion of malarial infection as a possible cause of the neuritis was worthy of consideration, for it was known that malarial poisoning, along with other infections, was quite capable of producing a multiple neuritis. The distribution of the paralysis might be more or less distinctive of the cause. The poison of beri-beri, whatever it might be, had a special tendency to attack the pneumogastric and phrenic nerves, and to produce embarrassment of breathing, weak and rapid heart, and oedema of the extremities. In no other form of neuritis did the causative agent have a selective action upon these particular nerves. In Dr. Wall's case, all the typical symptoms were present, and to his mind the diagnosis of beri-beri was abundantly justified.

The diagnosis of any disease, when it was prevailing more or

less extensively in a community, became easy, but the recognition of an isolated case of the rare diseases which were only seen occasionally, was often a matter of extreme difficulty.

Dr. Anderson said that he did not believe that beri-beri was a separate and distinct disease. He believed that it was an endemic multiple neuritis, due to a variety of causes. Under this hypothesis only could we explain its occurrence in widely different parts of the world, among persons of all conditions of life. The disease was found on English troop-ships, in lunatic asylums, among fishermen, in those eating rice, and those not eating rice. One case was evidently due to one toxin, another case to another toxin.

Dr. Wall. in closing the discussion, thanked those who had participated therein.

TUBERCULOSIS. REPORT OF EXECUTIVE COMMITTEE OF THE MEDICAL SOCIETY, D. C.

March 6, 1904.

DR. E. A. BALLOCH,

Chairman Sub-committee on Medical Society, etc.

Dear sir: At the last meeting of the Executive Committee a letter from the Health Officer relative to the desirability of legislation requiring all cases of tuberculosis to be reported to the Health Department was referred to the Sub-committee on the Medical Society, etc. The particular points to be determined in connection with this reference are as follows:

1. Should or should not all cases of tuberculosis be reported to the Health Department?
2. If the answer to query one is in the affirmative, what action should be taken by the Health Department upon receipt of a report of any individual case?
3. If the answer to query one is affirmative, what obligations, if any, should devolve upon the patient reported to the Health Department and upon those responsible for his care?

Sincerely,

WM. C. WOODWARD, *Corresponding Secretary,*

WASHINGTON, D. C., September, 21, 1904.

The Sub-committee on the Medical Society, etc., to whom was referred a letter from the Health Officer relative to the desirability of legislation requiring all cases of tuberculosis to be reported to the Health Department, begs to report as follows:

The question is one beset with many difficulties, but we have endeavored to give it careful consideration from the standpoint of the public and the profession, as well as from that of the sanitary officer.

We have no hesitation in saying that it is our opinion that *all* cases of tuberculosis should not be reported. Lupus and the various manifestations of surgical tuberculosis are practically innocuous, so far as the danger of communication to sound persons is concerned, and we can see no good reason for making them the subject of notification. The question thus narrows down to this: Shall all cases of pulmonary tuberculosis be reported?

It is conceded that from a statistical and theoretical standpoint it would be very desirable for the Health Department to have an exact knowledge of the number and location of all cases of pulmonary tuberculosis. It is pertinent, however, to inquire as to what practical use could be made of this knowledge.

Pulmonary tuberculosis is a slow disease; an affair of years, not of days or months. Restriction in any way is obviously out of the question. To keep an oversight on such cases would require a force of inspectors which would be so large as to be prohibitory. To keep track of the migrations of affected persons would be a formidable task, difficult, if not impossible.

It would seem, then, that in the event of compulsory notification, the function of the Health Officer would be limited to the giving of advice. Among the well-to-do and intelligent classes of the community such advice would be unnecessary. They are fully informed as to the nature and cause of tuberculosis, the danger of infection, and the modes of prevention. They and their physicians would probably resent compulsory notification as an invasion of their private rights and the law would be evaded and rendered nugatory.

It is, then, the poor and ignorant who are most in need of advice and instruction. Among the poor, the population is constantly on the move, and doubtless many are infected by moving into infected houses. If a law could be framed to reach these cases, it would be desirable, but we fail to see how it can be accomplished.

Can they not be reached in other ways as effectually as by compulsory notification? The profession generally is fully awake to the importance of limiting the spread of this disease, and may be trusted to do its part without legislation of a compulsory character. There are excellent societies, ready and anxious to furnish advice and literature. There are many instances where the physician would gladly be relieved of the burden of instructing patients and families as to the dangers of contagion and the means of preventing it. The Health Department is in close touch with the various agencies acting in this direction, and might, upon voluntary notification by the physician in charge of the case, set at work the proper machinery to prevent the spread of the disease to others. Again, in many instances, the judgment of the attending physician is that it is unwise to communicate to the patient the fact that he has tuberculosis. At all events, he prefers

to choose his own time and way to do so. If the physician must report these cases, it is conceivable that much harm might be done unless great discretion were exercised.

The lot of the consumptive is hard enough at best. The public, inflamed by a sort of half knowledge of the disease and its dangers, is already beginning to look askance at the unfortunate victim of pulmonary tuberculosis, and to add to his burdens the additional one of compulsory notification, and possible official supervision would, we think, be unwise.

So far as we have been able to observe, by casual inquiry among the profession in Washington, the general sentiment of the profession is that the time is not yet ripe for a compulsory notification law. It is our opinion that if such a law were enacted, its provisions would be evaded in so many instances, and complied with in a half-hearted way in others, that its good effects would be neutralized.

We therefore recommend that the letter of the Health Officer, which is returned herewith, be answered by informing him that it is the judgment of the Medical Society that such legislation would be unwise at the present time.

Respectfully submitted,

EDWARD A. BALLOCH,
*Chairman of Sub-Committee on the Medical Society,
and the Medical Profession.*

To DR. S. S. ADAMS, *Chairman of the Executive Committee.*

Recommendation of the Executive Committee with reference to the matter considered in the foregoing report :

The Executive Committee recommends that the Health Department prepare printed matter conveying necessary instructions in regard to methods of prevention in cases of tuberculosis, and that this be furnished to the medical profession for distribution as they may think it advisable.

S. S. ADAMS, *Chairman.*

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Wednesday, October 5, 1904.—Dr. Charles W. Richardson, President, in the chair. Over 54 members present.

The Treasurer reported for July, August and September as follows: Received—Interest on deposits, \$14.57; assessments, \$48.00. Total, \$62.57. Disbursed—MEDICAL ANNALS, \$97.50; extra copies, Keyes, \$3.50. Total, \$101.00.

The name of Dr. H. A. May, who was elected to active membership in April, and who had failed to sign the Constitution and

pay the entrance fee, though duly notified, was dropped from the list of members.

The following candidates were elected to active membership : Drs. E. E. Richardson, H. H. Stromberger, B. Alice Crush, Alfred Richards, Robert McAdory, James C. McKay, George A. Curriden, H. Atwood Fowler, Louise Tayler-Jones, James F. Mitchell, A. H. Kimball, Edgar H. Reede, Edgar W. Watkins, Mary Holmes, John P. Fillebrown, Henry R. Elliott, Jr., C. Alexander Crawford and Anna Bartsch.

An appropriation of \$105.26 for the publication of the ANNALS, etc., was ordered.

Dr. S. S. Adams, Chairman of the Executive Committee, presented a report on Tuberculosis. See p. 363.

Dr. J. B. Nichols read the paper of the evening : " The Diet in Typhoid Fever."

Wednesday, October 12.—Dr. Richardson in the chair. Over 46 members present. The Entertainment Committee was instructed to arrange a Smoker for November 9, the evening Drs. Musser and Dench would address the Society.

Dr. D. S. Lamb presented the following specimen :

Chronic nephritis with secondary hypertrophy and dilatation of the heart.

From a colored man, about 60 years old, who for many years had been a helper in the hospital kitchen. For some time he appeared to be gradually failing, though still doing some work, even to within a day or two of his death, which occurred, rather suddenly, October 9, 1904. He was not treated as a patient with any regularity and did not so appear in the hospital record.

The P. M. examination showed a general dropsy. The heart weighed 25 ounces, was hypertrophied and dilated, the hypertrophy being less marked, but the dilatation well marked on the right side. To the naked eye the heart muscle appeared normal. The valves were normal except a slight fatty degeneration of the mitral ; similar degeneration in the ascending aorta. Some old pleuritic adhesions left side ; lungs partly collapsed and pleural sacs contained much serum, as also did the pericardium and peritoneum. Passive congestion of liver ; large, firm spleen. Kidneys somewhat enlarged, especially the left ; numerous cysts in cortex, which also showed increase of connective tissue. There was no arterio-sclerosis and no history of alcoholism.

In this case the heart conditions were no doubt due to the primary disease in the kidneys, a form of compensation for the increased arterial tension caused by retention in the blood of irritating urinary constituents. The "nutmeg" liver was caused by the backing of the blood upon it from the heart, and the cysts of kidneys were due to the chronic nephritis in part and partly, perhaps, to senility.

Dr. J. D. Thomas said that the case was interesting, because the pathological conditions elsewhere were hardly sufficient to explain the extreme hypertrophy of the heart. He had met with such cases in laborers, but this man did not belong to this class. In others the condition was rare, especially without an accompanying arterio-sclerosis.

Dr. Lamb reiterated his belief that the case was one of chronic nephritis, with a secondary cardiac hypertrophy. The enlargement was generally ascribed to increased work of the heart, due to increased arterial tension, which in turn was caused by the retention of irritating products in the blood. The absence of alcoholism made the case particularly difficult of explanation.

Dr. Thomas inquired whether the irritating substance would not cause arterio-fibrosis also.

Dr. Lamb replied that while we should naturally expect arterio-sclerosis, it was certainly absent in this case.

Dr. Lamb also showed an anomaly of the hand; extra carpal bone. See page 321.

Dr. Nichols' paper on "The Dietetic Treatment of Typhoid Fever," was discussed by Drs. A. F. A. King, Vale, Wood, J. D. Thomas, R. S. Lamb, J. Dudley Morgan, S. S. Adams and Thomas C. Smith.

Dr. Walter A. Wells read the paper of the evening. "Mastoiditis, and the Mastoid Operation in Children." See page 323.

Wednesday, October 19.—**Dr. Charles W. Richardson**, President, in the chair. Over 60 members present.

Dr. D. S. Lamb, Chairman, reported that during the summer recess the Editing Committee had secured from the Post Office the right to send the ANNALS through the mail as second-class matter, thus reducing the expense of publication. This was brought about principally through the efforts of **Dr. Wells**.

Dr. Hickling presented a specimen: Tumor of the brain. Discussed by Drs. D. S. Lamb, A. F. A. King and Acker. See page 337.

Dr. Vale read a paper upon "Luys' Instrument for the Intravesical Separation of the Two Urines."

Dr. Wells' paper upon "Mastoiditis, and the Mastoid Operation in Children," was discussed by Drs. Butler, Dufour and C. W. Richardson. See page 335.

Wednesday, October 26.—**Dr. Richardson**, President, in the chair. 105 members present.

The following cases and specimens were presented:

By **Dr. Vincent**: *Aneurism of the Aorta.*

By **Dr. Snyder**: *Hysterectomy for Fibroids.*

Dr. Snyder presented a large, lobulated fibroid, taken from a negress 38 years old. The operation was performed by him three

weeks before. The growth of the tumor was slow, and was accompanied by the usual symptoms. The patient made a good recovery.

By Dr. Henry D. Fry: *Uterine Fibroid.*

Dr. Fry presented a portion of a uterus, with sloughing fibroid. The patient was a Mrs. B., 24 or 25 years old. She was first seen in June last, having come to Washington from New York City, where she had expected to undergo an operation for fibroid. She was five months pregnant, but the uterus was as large as ordinarily at full term. She was watched during the summer, her intention being to let the pregnancy go on, as long as respiration was not interfered with. There was no great oppression, and she did well. He had advised that eventually a caesarean section be performed, and then hysterectomy. She consented, and the time was expected October 22. She went along until September 15, when he was summoned; she was then seven months pregnant. He found severe hemorrhage, and examination disclosed a *placenta praevia marginalis*, the cervix being dilated to the size of a tea cup. She was taken to the hospital. He was unable to operate, as labor was proceeding rapidly. There was no further trouble from the placenta praevia, and the birth was normal, but there was much postpartum hemorrhage. The uterus was packed, but bleeding recurred one hour later. It was stopped by a hot intrauterine douche, but the loss of blood told upon her. Her pulse was 120, and ever afterward it ranged between 120 and 170. She had fever, but no sepsis. He thought the tumor was causing the trouble. Fever began on the second day, and September 24 it went up to 105, accompanied by a chill. The chills were repeated at intervals up to the 27th, when she expelled a gangrenous portion of the fibroid. He made a diagnosis of sloughing fibroid. Temperature reached normal September 30; October 7 milk-leg set in, and she nearly died. Evening temperature continued to October 15. Her condition did not justify either laparotomy or hysterectomy. Night before last, while on the bed-pan, she was seized with severe abdominal pain, and died at 9 p. m. last night. He believed that peritonitis was the cause of death, and this was confirmed by the autopsy made by Dr. Glazebrook. The top of the uterus was in a gangrenous condition, and at one point it had perforated, allowing a mass of gangrenous tissue to escape into the peritoneal cavity.

The following papers were read as a Symposium upon Tuberculosis:

Its Prevalence: Dr. W. C. Woodward. See page 291.

Early Diagnosis: Dr. T. A. Claytor. See page 316.

Prevention: Dr. D. P. Hickling. See page 292.

Surgical Treatment: Dr. W. P. Carr. See page 301.

Medical Treatment: Dr. S. S. Adams. See page 314.

Climatic Treatment: Dr. A. F. A. King. See page 296.

Sanatorium Treatment: Dr. George M. Sternberg. See page 305.

Applicability of the Greenland Fjords in the Treatment: Dr. Frederick Sohon. See page 308.

Wednesday, November 2.—Dr. Charles W. Richardson, the President, in the chair. Over 78 members present.

The Treasurer reported for October: Received—Assessments, \$616.00; entrance fees, \$50.00. Total, \$666.00. Disbursed—MEDICAL ANNALS, \$88.76; stamps, \$12.00; Recording Secretary, \$50.00; printing, \$3.00; binding transactions, \$1.50; janitor, \$30.00; typewriter, \$2.00. Total, \$187.26.

The Chair appointed Dr. Samuel D. Fry a member of the Committee on Entertainment.

The resignation of Dr. Wallace Johnson from membership was accepted.

The following cases and specimens were presented: By Dr. Wall, "Beri-Beri." Patient exhibited. Discussed by Drs. Nash, E. F. King, Ruffin and Anderson. See p. 359.

By Dr. J. Ford Thompson: 1. "Hysterectomy for Fibroids." See page 347. 2. "Cholecystectomy." Discussed by Dr. I. S. Stone. See page 340.

By Dr. Belt: "Sarcoma of the Orbit." Discussed by Drs. Monte Griffith and Polkinhorn. See p. 342.

The recommendation of the Executive Committee with reference to reporting cases of tuberculosis to the Health Department was taken up for consideration. (The report itself, however, was not read.) Dr. S. S. Adams, Chairman, briefly explained the principal reasons which led the Committee to favor the recommendation. Dr. Kober moved that the recommendation be adopted. Seconded by Dr. D. S. Lamb. Dr. Sprigg offered the following amendment, which was accepted by Dr. Kober:

"*Resolved*, That the members of the Medical Society of the District of Columbia co-operate with the Committee for the Prevention of Consumption by voluntarily reporting to the Health Officer all cases of tuberculosis of the air passages, on cards printed for that purpose, that he may prepare printed matter conveying instructions in regard to methods of prevention; and that these may be furnished to the medical profession for distribution, as they may think advisable."

Further consideration was postponed.

Editorial.

THE ANNALS is requested to publish the following :

The officers elected at the 30th Annual Meeting of the Mississippi Valley Medical Association, held at Cincinnati, O., October 11-13, are as follows: President, Bransford Lewis, M. D., St. Louis; First Vice-President, Frank Parsons Norbury, M. D., Jacksonville, Ill.; Second Vice-President, J. H. Carstens, M. D., Detroit, Mich.; Secretary, Henry E. Nostuley, M. D., Louisville, Ky.; Assistant Secretary, John F. Barnhill, M. D., Indianapolis, Ind.; Treasurer, S. C. Stanton, M. D., Chicago, Ill.

Next place of meeting, Indianapolis, Ind., October, 1905.

HENRY ENOS TULEY, *Secretary*.

The attention of members is invited to the instructions of the Society to its Editorial Committee (May 4, 1904), that hereafter an essay shall not occupy more than ten pages of the ANNALS, unless the essayist is willing to pay for the additional pages at cost rate, \$1.50 per page.

Medical Miscellany.

Effect of Certain Metals and Salts upon Brook Trout.—U. S. BUREAU OF FISHERIES.—The extreme toxicity of solutions of copper sulphate in water for brook trout is shown in some experiments recently made to determine for this salt the maximum concentration which young brook trout will endure without harm. Fish of about 2 to 2½ inches in length were used. They were placed in aquarium tanks of standing water without artificial aeration and only a few trout used in each trial. A control was set in each case. The dilute sulphate solution was made up directly in the tank from a stronger solution already prepared. Repeated trials showed that 1 part of copper sulphate to 6 million parts of water was always fatal within 24 hours, while they survived 1 to 7 million. 1 to 6½ million was fatal to about half the fry used, so that the death point lies in this vicinity. As spring water was used, doubtless the solution gradually weakened on account of precipitation of the copper.

Quicklime is also fatal to trout, but the fatal concentration is in some contrast to that of copper sulphate, it requiring about thirteen parts per million during twenty hours to kill. These latter figures are for black, spotted trout fry in the sack stage.

Metallic copper, when immersed in standing water containing the fish, soon kills them. Zinc has not been supposed to have any particular toxicity, but trials with galvanized iron strips immersed in water indicate that it is also harmful, the zinc of the galvanizing process presumably being the active agent. In one case, 144 square inches of galvanized iron in about seven quarts of water, held in a glass hatching jar, killed fry within twelve hours. The water stood without artificial aeration, but the control showed that fry would live for days without the galvanized iron. The area of metal exposed was considerably less than the area of the inside of the jar. Experiments with galvanized-iron transportation cans have much the same result.—M. C. MARSH.

Eastern Dispensary and Casualty Hospital.—The Board of Directors has purchased the large and commodious building, No. 708 Massachusetts Avenue, Northeast. This is a double house, situated on a lot nearly 100 feet front, running back to a large alley. There is a fine stable in the rear, also a good-sized out-building on opposite side of lot to the stable. The house will be remodeled for hospital use, and when completed will furnish ample facilities for the increasing work in this section of the city. An ambulance service will be established—a long felt want. There will be a room for emergency cases, also a separate room for oper-

ations. The following outdoor clinics will be held : Diseases of Women, General Medical, Diseases of the Eye, Diseases of Children, Skin Diseases, Surgical Cases, Nervous and Electro-Therapeutic Cases, Diseases of Ear, Throat and Chest. Dr. Lloyd has succeeded Dr. Jones as resident physician, the latter's term having expired. The report for the year ending June 30, 1904, shows : New cases, 1,948 ; operations, 637 ; deaths, 18 ; new patients, 2,065 ; revisits, 5,623 ; operations in dispensary, 116.

The Board of Lady Managers has materially aided the hospital by their arduous and faithful work.—C. R. DUFOUR.

The Washington Asylum.—During the last few months the appearance of the Washington Asylum Hospital has completely changed owing to the building of the tuberculosis tents and the connecting of the wards with large sheltered porches, which permits the bed patients to be carried into the open air for many hours during the day as well as serving for protected passage ways for the staff and nurses ; these porches are ten feet wide and about four feet above the ground ; the bottom is protected by a lattice work, while a roof about ten feet above the floor enables the patients to enjoy the benefits of fresh air and sunlight on pleasant days throughout the year. The tuberculosis tents are made after plans suggested by General Sternberg, who has taken an active interest in the prevention and treatment of tuberculosis in the District of Columbia. These buildings cost something less than two hundred dollars, and while they have not as yet stood the test of winter, yet they certainly seem well adapted to the conditions required of them, and it will fully repay any one interested in these cases to visit the institution and see them in actual use. The tents were donated by Mr. Phipps, of Philadelphia, Dr. W. C. Rives, of this city, and a lady through the Associated Charities.

D. PERCY HICKLING.

Health Office, District of Columbia.—Memorandum showing the relative prevalence of certain communicable diseases from July 1 to October 31, 1903, and the same period of 1904.

DIPHTHERIA.

1903.			1904.		
Cases on hand July 1, 1903...	5		Cases on hand July 1, 1904..	15	
Cases reported from July 1, to Oct. 31, 1903.....	49		Cases reported from July 1, to Oct. 31, 1904.....	175	
Cases discharged, recoveries,	45		Cases discharged, recoveries	100	
Cases discharged, deaths.....	3		Cases discharged, deaths.....	23	
* Per cent. of fatal cases.....	6		* Per cent. of fatal cases....	18.7	
Cases on hand Oct. 31, 1903,	6		Cases on hand Oct. 31, 1904,	67	
Total cases.....	54	54	Total cases.....	190	190

* The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.

SCARLET FEVER.

1903.			1904.		
Cases on hand July 1, 1903...	7		Cases on hand July 1, 1904..	23	
Cases reported from July 1, to Oct. 31, 1903.....	33		Cases reported from July 1, to Oct. 31, 1904.....	120	
Cases discharged, recoveries,	27		Cases discharged, recoveries	102	
Cases discharged, deaths.....	0		Cases discharged, deaths.....	3	
* Per cent. of fatal cases.....	0		* Per cent. of fatal cases.....	2.8	
Cases on hand Oct. 31, 1903,	13		Cases on hand Oct. 31, 1904,	38	
Total cases.....	40	40	Total cases.....	143	143

TYPHOID FEVER.

1903.			1904.		
Cases on hand July 1, 1903...	58		Cases on hand July 1, 1904..	34	
Cases reported from July 1, to Oct. 31, 1903.....	590		Cases reported from July 1, to Oct. 31, 1904.....	681	
Cases discharged, recoveries,	444		Cases discharged, recoveries	411	
Cases discharged, deaths.....	85		Cases discharged, deaths.....	79	
* Per cent. of fatal cases.....	16.2		* Per cent. of fatal cases.....	16.1	
Cases on hand Oct. 31, 1903,	119		Cases on hand Oct. 31, 1904,	225	
Total cases.....	648	648	Total cases.....	715	715

SMALLPOX.

1903.			1904.		
Cases on hand July 1, 1903...	2		Cases on hand July 1, 1904..	0	
Cases reported from July 1, to Oct. 31, 1903.....	10		Cases reported from July 1, to Oct. 31, 1904.....	2	
Cases discharged, recoveries,	8		Cases discharged, recoveries	1	
Cases discharged, deaths.....	0		Cases discharged, deaths.....	1	
* Per cent. of fatal cases.....	0		* Per cent. of fatal cases.....	50	
Cases on hand Oct. 31, 1903,	4		Cases on hand Oct. 31, 1904,	0	
Total cases.....	12	12	Total cases.....	2	2

*The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.

W. C. WOODWARD.

Book Review.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE. By GEORGE M. EDEBOHL, A. M., M. D., NEW YORK: FRANK F. LISIECKI.

This work is a compilation of the author's various publications on this subject with the addition of new matter, bringing his results up to date.

It is somewhat controversial in tone and is essentially a defense of his operation and a claim for priority in its execution. The operation consists in a decapsulation of one or both kidneys. It is based upon the theory that this procedure results in a new and improved circulation in the diseased organ, whereby the inflammation is relieved.

If Edebohl's work in this direction should amount to nothing more, it would be of permanent value, in that he has clearly demonstrated that in many cases where the examination of the urine shows evidences of nephritis, the disease is limited to one kidney. In many of these cases the affected kidney is movable and the nephritis is cured by a nephropexy, with or without incision or complete removal of the capsule. This is a strong argument for the examination of the separate urines in these cases. Whether such cases can be considered as true Bright's disease is a debatable question. Our knowledge of the pathology of Bright's disease is confessedly incomplete, yet to assert that any large proportion of cases of chronic nephritis can be cured by renal decapsulation is a more advanced position than most physicians, surgeons and pathologists would be willing to take.

Eliminating from Dr. Edebohl's list all cases of "unilateral nephritis" and every other case in which there is any room for doubt as to the diagnosis, there yet remains a very respectable number of cases in which, apparently, a perfect cure resulted. This showing, in itself, is sufficient to secure for the operation at least a favorable consideration as a measure for the relief of chronic nephritis, especially as the operation is not dangerous.

This, in fact, is as much as the author himself claims, and the present status of the procedure is fairly summed up in his own language when he says that "a much longer period of observation than the period of time elapsed since the introduction of the procedure is necessary before final judgment can be passed upon the real and full value of renal decapsulation for chronic Bright's disease."—EDWARD A. BALLOCH.

WASHINGTON MEDICAL ANNALS

PRESIDENTIAL ADDRESS.*

BY CHARLES W. RICHARDSON, M. D., PRESIDENT OF THE SOCIETY.

During the past year nothing of unusual interest has transpired in the history of the Medical Society of the District of Columbia. We have been happily enabled to devote the major portion of our time to the more delightful and deeply interesting scientific work for which we are called together. For this we owe thanks to my predecessor in the presidential chair, and those able aids, the members of the Executive Committee, who have cleared the roster of all important legislative measures; and to the perfection of the working mechanism of the Society, so that the greatest amount of business can be transacted in the shortest space of time. The papers presented during the present term have all been of a high class, well written, presented and considered; the discussions have been ample, good tempered, and universally of a high order. Two meetings held during this session deserve especial mention—the meeting held March 16, at which Dr. W. W. Keen read his paper on the “Surgical Complications of Typhoid Fever,” and the meeting held November 9, when papers were presented by Drs. Musser and Dench. The first meeting called out 225 members, the largest attendance that many have ever witnessed assembled at one regular weekly meeting; at the latter there were 135 members. It was interesting to me to note how impressed our distinguished guests were with the large assemblages which greeted them at these meetings. It will no doubt interest you, also, as it comes from gentlemen who are accustomed to deliver addresses before medical bodies in cities other than that of their homes. They asked numerous questions as to the frequency of our meetings, the average attendance, and upon other topics in connection with the scientific program of the Medical Society, and they were all impressed with the fact that we were doing

* Read before the Medical Society of the District of Columbia, December 14, 1904.

earnest, valuable, scientific work, and that we had thoroughly cultivated the Medical Society habit.

The Medical Society habit is a most healthful mental stimulus for the medical man. I know of no other habit that is as productive of so much good, and is so thoroughly safeguarded from deleterious effects. I would strongly urge upon those who have not cultivated this habit to do so, that they may fall under the beneficent influences which attend the formation of such a habit. One of the greatest and most imposing features of our regular weekly meetings is the wealth of pathological material which is always demonstrated. This one feature of the program is sufficient to repay one for the effort made in attendance. I think the Society's thanks are due to Dr. D. S. Lamb for his continuous and markedly successful effort in purveying the major portion of this material. The attendance at the regular meetings throughout the year has been good. There was a loss of one meeting during the year, the last of the spring session, on account of the failure of a quorum to be present. The average attendance was 65; the largest attendance at any meeting was 225. The smallest attendance was at the business meeting held July 4, only nine members being present. Twenty-four new members were added to the roll of membership during the past year. Only three have passed from our membership into the life beyond during the current year—Dr. Wm. H. Hawkes, March 13; Dr. Thomas John Chew, May 2; and Dr. James Clark Bird, December 5. We have also by resignation lost five members.

I wish to express my earnest and heartfelt thanks to all the officers and committees of the Society, who have performed their duties with such marked fidelity that they have smoothed my anxious moments and made my term of office one of great pleasure and profit to me. To the Society, which has honored me with its greatest gift, I express my thanks.

THE HISTORY OF A SPECIALTY.

When casting about for some subject upon which to hang the thoughts which I am to express to you tonight in my presidential address, I became impressed with the gigantic proposition which I had on hand, and the almost helplessness of my undertaking. It was while coaching through the fairy scenery of North Wales last summer that the subject which seemed most

suitable to me—and I hope to you—came uppermost in my thoughts. That subject was the history of Specialism. I had bravely started at my task when I became overwhelmed with the immensity of the subject, and, probably what will be to your great satisfaction, concluded to limit myself to the history of one specialty. The history of modern specialism in medicine and its evolution during the nineteenth century is so contemporaneous and so alike that the history of the development of one, except as to dates and historic facts, gives fair ideas of the progress leading up to the birth and present-day knowledge of all the specialties.

Specialism is co-existent with the birth of man. Man in his primitive life had few wants, and specialism, therefore, was limited in its scope; but, as man developed morally, intellectually and physically, these wants increased, and as one individual was incapable of supplying them all, the first specialization into the trades, arts and sciences followed. Since then its development has kept pace with the increase of knowledge and the density of population. Medicine has shared this heterogeneity with the allied arts and sciences; probably to no greater degree. The limited compass of the human intellect and the boundless expansion of scientific knowledge make this inevitable. The three great factors which in the nineteenth century have brought about the multiplication of specialists are: The increase and diffusion of knowledge; aggregation of population, with rapid, easy and frequent means of transportation; and the invention of instruments requiring special skill and delicacy of manipulation.

Dr. E. Kronenberg states in Heymann's Handbook that the history of laryngology and rhinology begins with the year 1858. By this observation Kronenberg means that the exact knowledge of this specialty began with the introduction of and the application of the laryngoscope and the rhinoscope to the study of diseases of the upper air passages by Czermak and Tuerck. For many centuries previous to this momentous event, reaching back into the time of the Pharaohs, there commenced the steady, gradual separation and accumulation of facts in connection with these specialties which led up to and only made possible the rapid strides which this branch of the medical science has made in the past half century. The earliest written knowledge of this branch of our art is contained in the *Papyrus Ebers*, which is supposed to represent the era 1550 before Christ. In this we find frequent in-

dications of disease of the throat and nose ; the stinking nose and polypi being among those mentioned. The medicine of the Chaldeans and Assyrians, although they were closely allied with the Egyptian civilization, shows no evidence of knowledge in this direction. In searching the writings of ancient Hindoo, we find in the Susruta many references to the diseases of the nose and throat, as well as in the Charaka-Samhitâ. Even at this early day uvulotomy and tonsillotomy were recognized surgical procedures. Rhinoplasty, with minute and careful description, are indicated. Vapors and fumigation were already introduced for the treatment of diseases of the nose and throat. "If a foreign body is in the throat, the extraneous matter may be discharged by thrusting down a hot iron to dissolve it, or soften it, and so remove it. In such cases the hot iron is passed through a metallic tube."

There is practically little to interest us in the prae-Hippocratic era of medicine. The only interesting event of this period that arrests the attention of the rhinologists and laryngologists is the discovery of the Eustachian canal by Alcmacon, antedating by several centuries its discovery by Eustachius. Coming down to the writings said to have been left by Hippocrates, we find numerous references to lesions of the nose and throat and more intelligent methods of their management. The ideas of catarrh at this time were very meager, as he knew nothing of the minute anatomy of mucous membrane. He showed quite a knowledge of nasal hemorrhage, and adopted many of the methods we have in vogue at the present day to arrest it. The removal of nasal polypi was resorted to by the sponge method, which method is still described and practiced by Voltolini. In one passage, in describing a throat lesion, which reads as though he were depicting a case of laryngeal diphtheria, he seems to have suggested a crude form of intubation. The passage reads as follows: "And to pass tubes into the pharynx along the jaw, so that the breath may be drawn into the lungs, * * *" Celsus seems not to have added much to the growth of our specialty. To Aretaeus we must pay homage as the first to describe direct topical applications to the nasal mucous membrane. About this time Paulus Aegineta describes, for the first time, the operation of tracheotomy, as practiced by Antyllus, a distinguished surgeon of this period. Of

diseases, as well as of the anatomy of the nose and larynx, Galen wrote quite extensively.

No one else in the history of medicine exerted such an influence over the succeeding ages of medicine as did Galen. In fact, until the coming of Vesalius and his followers, nearly a thousand years later, he held complete sway over the medical world. Paul of Aegina was the first to introduce the snare method of removing nasal polypi (610 A. D.). From the fall of the Roman Empire until the renaissance, there was almost a complete cessation in the development of our science ; its maintenance at its equilibrium, with slight advancement, fell into the custody of the Arabian invaders. The cautery was an instrument very much in favor by the Arabians for nasal conditions. During the early renaissance the study of anatomy and physiology began to invite the attention of a number of industrious scholars. Among the illustrious men who devoted much of their attention to the study of the upper air tract may be mentioned Vesalius, Fallopius, Bauhinus, Fabricius ab Aquapendente, Casserius, Santorini, Morgagni and others. Santorini's work is of especial interest, as he first viewed the larynx from above, as we are accustomed to view it, through the mirror. The nose was also subjected to the most careful consideration and description as to its mucous lining, the conformation of its bony skeleton and the communicating cavities. Although Galen in frequent passages referred to the porosity of the bones of the head, he never directly described the accessory sinuses. It was Berengar (1502) who described them and he is credited with being the first to definitely indicate their existence. Vesalius and Fallopius also added materially to our knowledge of these sinuses. Ingrassias was the first to describe the anterior ethmoidal cells and Casserius to describe the turbinate bones. To Casserius we are also indebted for his admirable description of the anatomy of the pharynx in his work on the "Organs of the Voice and Hearing."

About this period the active study of the physiology of the nose and throat was attended with the destruction of old views and the establishment of new facts. Among the most celebrated of the masters along this line, and one who has made his impress upon the history of rhinology, is Conrad Victor Schneider (1680) the celebrated Wittenberg professor. It was he who wrote an extensive work called "De Catarrhis," which contains some facts

in an excessive verbosity. He called attention to the fact that the nasal secretion was not produced in the cranial cavity, from which it filtered through the cribriform plate to the nose, but that it was a product of the nasal mucosa; he did not, however, recognize the racemose glands. He stated that the accessory cavities were, in a normal state, practically empty. To Steno, perhaps, more clearly than to anyone else, belongs the distinction of describing for the first time the glands of the nasal mucous membrane. Wright, Kronenberg and Zuckerkandl give to Schneider the credit of the earliest description of the conglomerate gland, situated at the vault of the pharynx, and known as the pharyngeal tonsils. The physiological action of the laryngeal musculature was carefully considered by Fabricius, Casserius and Morgagni.

It is interesting to note here that about the period we are now passing through in our description the first separate treatise on laryngeal diseases appeared, "*De Vitiis Vocis*," by Codronicus, published in 1597. Therapeutics made but slight progress during all these centuries, and surgical procedure within the cavities showed only slight changes. The disgusting remedies handed down from the Hindoo, Chaldean and Egyptian tradition were still largely vaunted for their efficacy. Fabricius invented a supposedly improved uvulatome made in the form of a string snare. During this period, the ravages of syphilis were well recognized as affecting the upper air tract, and prosthesis was resorted to in an effort to correct the deformities about the head and soft palate produced by this disease.

To Paré is given the credit for having first performed the operation of staphylorrhaphy. Lisfranc, Rolandus and Benivenius directed the method of opening abscesses without and within the throat. Casserius ascribes to Brasavola, who died in 1555, several operations for the opening of the trachea. Casserius evidently also performed the operation, although from Fabricius, who never performed tracheotomy, we have the best description of the operation with the various canulas (straight canula) to be used in the trachea. The success which attended the operative attempts of Habcot, Deckers and Heister established and made general this procedure as a legitimate and safe operative method. To John Baptist Morgagni are we indebted more than to any other of his time for the remarkable advance made in the knowledge of disease of the larynx and the nose. In the anatomical, as well as in the

pathological field, he made great advancement and important discoveries. He described the superior turbinate body (also claimed to have been first described by Bertin), the opening of the lachrymal duct in the nose and the ventricle of the larynx which bears his name. His greatest service, however, was his pathologic-anatomical study of disease of the larynx. Lieutaud followed up the method of study inaugurated by Morgagni, and it was he who, among a number of sections of the larynx, found the first two cases of laryngeal polypi. In the pathology of the nose new growths attracted more the attention of the observers of this time, as they also did the attention of the surgeons. They were studied in regard to their structure, their location, their origin, their relation to the communicating sinuses and to the body in general. An endless variety of apparatus were introduced for their removal. To the most extensively used instruments belong the scissors of Fabricius, the forceps of Diones, the snares of Fallopius, Levret and Desault.

It is interesting here to note that the history of the nasal speculum is shrouded in obscurity. In none of the works which I have at hand is there mention of the period in medicine when it first made its appearance. Wright states that Guy de Chauliac referred to a device of Haly Abbas, as "speculum ad Solem," which may have been used for dilating the nostrils. He is inclined to believe that this old master of the Middle Ages misinterpreted the Arabian master. Some method of dilating the nostrils was evidently known during the Dark Ages, and we should judge from the frequent use of the cautery by the Grecians that some means must have been resorted to for dilation as well as protection.

The diseases of the sinuses, especially of the frontal and antral, were recognized and operated upon. Cowper suggested, 1698, the alveolar opening of the antrum of Highmore. Desault also suggested the method of entering this cavity through the canine fossa. Most interesting is the suggestion made by a Parisian dentist by the name of Jourdan (1756), to sound and wash out the antral cavity through the *Ostium Maxillare*. Quelmalz wrote the first thesis (1750) on the deflection and spurs of the septum. Morgagni in his work devoted much attention to the same subject and criticised liberally Quelmalz's deductions. Coming down to the end of the Eighteenth century, we find that

enormous gains had been made in the anatomy and physiology of the upper air tract; and a wealth of pathologic-anatomical material that awaited the coming of the laryngoscope era for proper consideration, differentiation and classification. The three great propositions that claimed the attention of the workers in this field in the immediate præ-laryngoscopic era were the croup, the acute inflammatory reactions and the laryngeal tuberculosis. While a great deal was written upon the subject of diphtheria, it was not until the appearance of the classic by Bretonneau, in 1826, that the subject was thought to have been thoroughly and masterfully dealt with.

The history of the growth of our knowledge of laryngeal tuberculosis usually goes back to Morgagni and his followers. It was during the early part of this century, though, that the differentiation between this condition and syphilis was more thoroughly considered. The leading investigators who described tubercular lesions of the larynx were Trousseau, Belloc, Pravaz, Louis and Andral. Before we finally desert this field we must refer to some of the work accomplished during this period to fill in the space still unsupplied in the anatomy and physiology of the former periods. The gross anatomy of the cartilages and the musculature of the larynx was completed. R. Willis made clearer the structure and the mechanism of the articulations, and, through the efforts of Bischoff and Meyer, the course of the finer ramifications of the nerve supply of the larynx was made more complete. The innervation of the larynx was most thoughtfully considered by several very earnest and thoroughly scientific workers, among whom worthy of mention are Le Gallois, Sir Charles Bell, Magendie, Marshall Hall, Dr. John Reid and Claude Bernard.

Voice production was also receiving careful and critical consideration. During the early part of the nineteenth century special separate treatises were beginning to appear upon this interesting department of medicine. In 1804 there appeared the first separate "Treatise on the Diseases of the Nasal Fossae and their Sinuses," by Deschamps. In 1821 Cloquet's work on Olfaction appeared, dealing with the nasal diseases as much as with olfaction. The first illustrated work on these subjects, entitled "Anatomico-Chirurgical Views of the Nose, Mouth, Larynx and Fauces," appeared in 1809, and was the work of John James Watt. The first comprehensive, separate treatise, probably, on the subject of

the larynx appeared in the year 1826, and was written by William Henry Porter. This work by no means compared with a work that shortly thereafter was published by Albers (1829), and is referred to by Heymann as the first comprehensive monograph on diseases of the larynx. In 1838 there appeared works by Ryland and Columbata. In 1858 Horace Green, the father of American laryngology, published his work entitled "A Treatise on Diseases of the Air Passages." It is interesting to note that his work, especially that part which suggested his ability to make topical application to the larynx, called forth a storm of criticism and abuse against this brilliant pioneer, not only in his native land, but also in England and France. Bowman described the glands in the nasal mucosa which bear his name in 1845. The tonsils were regarded by Henle as racemose glands. Koelliker was the first who properly described the faucial and lingual tonsils, although the finer structure of the lymphatic network escaped his observation. The minute anatomy of these glands and the relation of the lymphatic structure was not thoroughly understood until the day of Waldeyer.

In Bell's "System of Surgery" is depicted the early tonsillotome. This was improved by Philip Physick in 1828. Four years later Fahnstock suggested the instrument which, under its present modification, is known as the Matthieu tonsillotome. We are now standing upon the threshold of that eventful era in the history of these specialties when the discovery of and the application of a simple principle in physics was to be applied to practical use in medicine by two Austrian physicians. Already, before the advent of the laryngoscope, there were men in various large cities of the Continent, British Isles and America who had turned their attention to the study and relief of diseases of the upper air passages. They had collected, differentiated and classified the disseminated knowledge of their subject, and had even successfully attempted to enter the larynx to remove growths and make topical application. The birth of the specialty had already dawned before the laryngoscope. Its development was marvellous after its advent. During the early part of the nineteenth century the thoughts of men began to be directed to the possibility of the examination of the interior of the larynx through the medium of mirrors.

In 1807 Brozzini published a brochure wherein he described an

instrument composed of a double canula. With a mirror placed at an angle at the end, the light was carried through one canula, thrown upon the mirror and reflected back to the eye through the other canula. The instrument was used successfully, but was too imperfect to attract much attention to the idea. The instruments presented by Benjamin Babbington (1829) and Cogniard de la Tour (1825) were practically the instrument as suggested by Garcia. In 1827 Senn employed a small mirror in the pharynx in attempting to examine the larynx. In 1837 we find the following passage written by Liston :

“The existence of this swelling (of the laryngeal mucosa) can often be ascertained * * * by means of a speculum by such a glass as is used by dentists, on a long stalk, previously dipped in hot water; introduced with its reflecting surface downward and carried well back into the fauces, a view may often be had of the parts.” Baumes, in 1838, exhibited at the medical school at Lyons a mirror about the size of a two-franc piece, which he claimed to be practically useful in examining the larynx and posterior nares. Trousseau and Belloc, during their investigation of laryngeal tuberculosis, made ineffectual efforts to view the larynx. Adam Worden and Ephraim Cutter—the latter some of you well remember—suggested the use of prisms. All their investigations and attempts to perfect the practical examination of the interior of the larynx show that the discovery was in the air at this time.

To a distinguished teacher of music, Professor Manuel Garcia, who lives today to see the wonderful success in medicine that has attended his painstaking efforts to view the larynx, belong the honor of having invented the laryngoscope. Manuel Garcia celebrates early next spring—should he be spared—the one hundredth anniversary of his birth. It was in the year 1855 that Garcia, in a few concise words, described the instruments and methods he employed in using them to view the vocal cords.

Türk (1857), who claimed he was at the time making investigation along the same line, had his attention directed to the writing of Garcia, and immediately began the practical application of this method to the investigation of diseases of the larynx. Czermak shortly afterwards began a series of researches along the same line. In his investigation he used a large perforated mirror for the reflection of sun or artificial light. In March, 1858, Czermak published a paper on the laryngeal mirror, in one

of the Vienna medical publications. The question of priority in use of the laryngeal mirror for diagnostic purposes caused a long, bitter, acrimonious strife between these two distinguished men. Türck and Czermak both traveled through the various capitals of Europe lecturing upon and demonstrating the value and use of the laryngoscope before various scientific bodies and universities during the year 1859. Czermak made use of rhinoscopy for the first time. This method of subjecting the post-nasal cavity to visual inspection was taken up by Voltolini, who perfected the technique. Voltolini discarded the palate retractor in rhinoscopic examinations. Stoerck, in 1859, in an article on the technique, spoke of making applications of nitrate of silver to the larynx through the aid of the laryngoscope. This began the intelligent application of intra-laryngeal medication and surgery to diseased conditions of these structures.

Through the teachings and writings of Türck and Czermak, the knowledge of the use of the new methods of investigation spread throughout the civilized world. Morrell Mackenzie, in England, after his visit to Vienna, aided by his teaching in spreading the knowledge in the British Isles, as well as by his technique and through his thoroughly trained scientific mind, added materially to the prosecution and study of this science. Strangenwald, Church, John H. Douglas and Horace Green in 1861 reported the new art in America. Louis Elsberg and J. Solis Cohen were the two pioneers in this art in our native land, who fairly blazed the way for the following generation. C. Rauchfuss introduced the art into Russia. Voltolini contributed much to the spread of this art in Germany; through his diagnostic skill and clearness of diction he added materially to our information, and by his wonderful inventive genius added much to our armamentarium. The progress made by these specialties soon demanded recognition by the university authorities. In 1864 Türck was created a professor at the University of Vienna. In the catalogue of the Medical Department of the University of New York (1868) appears the name of Dr. Louis Elsberg, as professor of Diseases of the Throat. Harvard Medical School recognized the specialty in 1875.

At first, papers on this special topic appeared in general journals, later, in otological journals. Special journals on laryngology did not appear until the late seventies. The first publications in book

form were those of Türck, Cohen, Fauval and Mackenzie. They are now too numerous to attempt to mention. The first special laryngological society was founded in America. Before the advent of the laryngeal mirror, as we have already stated, the laryngeal growth was known and had been removed through the natural passage. With this new means of diagnosis an impetus was given to the early diagnosis and removal of these morbid growths. The first intra-laryngeal operation with forceps and the aid of the laryngeal mirror was carried out by Lewin and reported by him in 1861.

Second only to the invention of the laryngoscope was the classic description of the pathological change in the pharyngeal tonsil, described by Wilhelm Meyer, of Copenhagen, in 1868, in a paper entitled "On Adenoid Vegetation in the Naso-Pharyngeal Cavities." The advent of the laryngoscope and the remarkable new field of research which it opened up to the laryngologist caused him for years to turn his thoughts entirely away from the consideration of the nasal and pharyngeal cavities.

From the time of the publication of the works by Deschamps, Cloquet and Piorry until the year 1875, when Watson and Michael, by the publication of their brochures aroused the laryngologist to the prolific field of research within the nose and pharynx, the study of diseases of these cavities received only scant attention. The erectile tissue of the nose first claimed attention, and while descriptions of it were made by Kohlrausch, Bigelow and others, it remained for the master mind, Zuckerkandl, to elucidate the real structure. Reflex neuroses in the late seventies and the early eighties claimed great attention. Voltolini was probably the first to call attention to the intimate pathological relation between nasal growth and asthma; but it was not until W. Hack's published paper on "Reflex Neuroses" (1882), that the attention of the laryngological world was aroused to attention. Immediately attendant upon and following the discussion of this subject there was ushered in the period of intranasal surgery; at first the more innocent chemical acid and then the cautery. In 1887, Solis Cohen used the dental engine for driving cutting instruments in removing obstructions from the nose. Bosworth, in 1887, introduced the free-hand nasal saw, which bears his name. I well remember the excitement created in Vienna when this saw was first exhibited in the clinics. About this time Jarvis and Bosworth made their improvements on the nasal snare of Fallopius.

It was during this period that the third remarkable impetus was given to these specialties by the discovery of the local anesthetic properties of cocaine by Jelinek, in 1884. I am well aware that the surgical use of cocaine was discovered by Dr. Carl Koller, but to Jelinek is due the honor of having introduced it into laryngology. Through this one discovery the whole possibilities of these specialties in diagnosis, treatment and surgical procedures were revolutionized. Voltolini in 1887 suggested the transillumination of the tissues through the aid of the electric lamp. Dr. Theodor Heryng called attention to Voltolini's suggestion in 1889, and extended the use of transillumination in diseases of the accessory sinuses. During this period very active work was going on in various departments of our art, but none attracted so much interest as the study of the physiology and pathology of these organs. The pathologic field was very inviting, especially in connection with the study of laryngeal cancers and tuberculosis. In the nose the etiology and treatment of atrophic rhinitis and the elucidation of the whole subject of sinusitis has claimed the attention of many talented workers. The work of French, of Brooklyn, in photography of the larynx deserves special attention.

It would not be proper to close this consideration of the history of laryngology and rhinology without giving tribute to that great and illustrious hero, Joseph O'Dwyer, who in 1885 published to the world his great discovery of intubation—that operation which has given more immediate relief, turned despair into hope, and saved more child life from immediate, terrible death than any other operation known to man. I would call this the fourth great epoch in the history of modern laryngology. I have already told you of Hippocrates' suggestion with regard to passing tubes, and of the frequent references to it through the renaissance. The efforts of Desault, Bichet, Loiseau and Bouchet would require too much time to even attempt to describe. It is quite well known that O'Dwyer had no knowledge of these, and, even if he did, the honor belongs to him for having invented the only tube that can be introduced, allowed to abide, and be removed from the larynx in safety.

In the rather hasty review of my subject, I know that there are many interesting features I have had to pass by without alluding to, and others that might appeal to many as being of moment,

from an historic point of view, but I beg extenuation for any omission on account of the fear of wearying my audience by being too verbose. Dr. W. K. Simpson has stated that "true specialism is a limitation of work rather than a limitation of knowledge." This is a correct definition of specialism, as it should be—not what it unfortunately frequently is. The reason why the ideal of specialism, as described by Simpson, is not universally attained rests in the method by which recruits to a specialism are gained. One of the foremost reasons why the specialist does not reach the ideal of specialism is imperfect preparation. It is a great misfortune, both for specialists and general medicine, that many men enter medical schools with preconceived ideas as to what is to be their future field of usefulness in medicine. Some do not wait until they matriculate for this decision; others decide during the first year of their medical study. Most of such young men are influenced by motives in pursuing the idea to follow this or that specialty for other reasons than any peculiar, inherent adaptability they may have for the life work in view. Some of the universities have adapted their medical course so as to pander to and develop such a class of medical students by so arranging the medical course that the student specializes along some certain line throughout the whole undergraduate course.

Another great error that is made by another large class is the specializing immediately after graduation. The first class that I have enumerated above start out in their undergraduate work with but one object in view, namely, the accomplishment only of that work which is going to make them proficient in the specialty which they have selected, and sufficient fundamental work to enable them to gain the coveted degree in medicine. After graduation, the fundamental work is laid aside, and the narrowness which began with their matriculation is accentuated throughout their special life. The second class have a better theoretical, fundamental medical teaching, but it is yet mere learning, and takes the practical training to enable it to be taken in and absorbed as knowledge. They stand on a broader base than the former class, yet lack substantial foundation.

The student who passes through his undergraduate life with a thorough love for the subject, his sole aim and ambition being an acquisition of a working idea of medicine, who graduates, and from hospital or work on the outside appropriates what has been taught

and read to knowledge, is the class from which the true recruits to the ideal specialism are made. These men drift into specialism often from developing in themselves a particular liking for some special line; from their developing skill and dexterity in certain lines as regards diagnosis or surgical procedure, which are quickly recognized by their confreres and the laity, and last from circumstances, surroundings and environments which influence and shape their courses. All specialism has a tendency to narrow the worker to the field of labor within which he has cast his lot. In medicine, specialism is an equally hard taskmaster, and it is only by continued alertness and persistent attention that the specialist is able to keep up to the advance and maintain his interest in general medicine, so as to avoid a limitation in knowledge as well as in work.

I do not wish to be understood as meaning that occasionally good men in special fields are not developed from the first two classes, but what I do wish to impress is that they are more frequently developed from the last class. In the days of modern medicine it is hardly necessary, it seems, to call attention to the absolute interdependence of all departments of medicine upon each other, and how they all grow out of and form an integral part of internal medicine and surgery. The various specialties have, through their armies of workers taken this or that organ or area of the human body, studied its anatomy, physiology, pathological anatomy, bacteriology, applied various physical devices, when necessary for the study of its diseases, and applied those methods of treatment, both surgical and medical, which seemed to accomplish the best result. No one can deny the wonderful advancement which has been made in the art and science of medicine through the special workers in all lines. As the various special branches of medicine bring to fruition the object of their research, they become the property of the whole medical body. In the management and treatment of special diseased conditions, either from a medical or surgical point of view, as the specialist through numerous trials and tribulations perfects the technique of the surgical procedure or the rationale of the medical treatment, so they become the property of the whole medical body. So it is as the special worker elucidates the facts in connection with the field in which he works, and passes it in perfected form to the treasure house of medical knowledge, it becomes the property of all, and

the cloak of *ism* falls from its shoulders. The situation has already been nearly attained by the works in the special field of gynecology, and will, in the coming generation, be more manifest in what are now known as more or less restricted fields of specialism. Heterogeneity in medicine was essential for its progress, from the complicity of the problem, and the inability of man's mental capacity to grasp the whole subject.

THE IMPORTANCE OF MIDDLE-EAR SUPPURATION, FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

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It is with some hesitation that I address a body of distinguished medical men upon this subject. A suppuration of the middle ear is a condition so frequently met with and so universally recognized by every careful medical man that it seems hardly necessary to call the attention of any practitioner to its importance. It seems more than unnecessary to emphasize the importance of this condition to those of you who, in addition to your general work, are engaged, to a certain extent, in special practice. As I, myself, deal only with diseases of the ear, I should not have thought of bringing this subject before you had not certain cases, which have presented themselves to me within the last few years, emphasized the necessity of recognizing the danger which may be present whenever there is a suppurative process within the tympanic cavity.

This suppuration may be acute or chronic. At the present day every general practitioner realizes the importance of an acute suppuration within the middle ear. I think that at the present time it is the exception, rather than the rule, that any patient passes through one of the exanthemata without having a careful examination made of the ears, provided, during any stage of the disease, there is a sudden and unexplainable rise in temperature. Experience has taught us that in scarlet fever, measles, and frequently in diphtheria, one of the most common causes of a sudden rise in

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temperature is an invasion of the middle ear by pathogenic organisms. Ordinarily in these cases of acute involvement of the tympanic cavity, in patients old enough to complain of subjective symptoms, the subjective symptom of pain indicates to the physician the special region attacked. In young children, who cannot aid us in our diagnosis, it has become the almost invariable rule in cases of the exanthemata to have the ears examined in order to determine the possible cause of a sudden and otherwise unexplainable rise of temperature.

A case which came under my observation last winter illustrates, I think, most clearly this fact. The patient was a child, about three years of age, suffering from a mild attack of scarlet fever. The temperature ran the characteristic course of scarlet fever, and about the fourth day of the disease varied between 100 and 101; then the temperature suddenly rose. The child did not appear to be in pain, and I was asked to examine the ears to see if the local condition could account for the temperature. Upon either side the drum membrane was only slightly hazy and congested. I incised both tympanic membranes, and the incision was followed by an immediate fall in temperature to normal. Cultivations from the discharge showed a streptococcus infection on the side upon which the signs were more marked and a staphylococcus infection upon the opposite side. The child made a complete recovery, with normal hearing. Had the condition been neglected the temperature would certainly have continued for a considerable period of time, thus weakening the patient, while the effect of the inflammation upon the special sense of hearing must certainly have been disastrous.

Another case has recently come under my observation, in which a child of ten had suffered from tonsillitis for two days. On the third day the patient complained of some pain in the left ear, and this pain was followed by a slight discharge of serum from the left external auditory meatus. I saw the patient the following day, and the morning temperature was 99. An examination of the ears showed a small perforation upon the left side, which had apparently healed. Upon the right side there was considerable bulging of the drum membrane, although the patient had complained of no pain in this region. I was inclined to think that we had to deal with a mild inflammation of both tympanic cavities, and advised against operation. No pain was complained of

after the patient's first visit, but a record of the temperature showed a daily rise in the afternoon temperature of 101.5. As this continued for three days, I then incised both drum membranes, which procedure was followed by an immediate fall in temperature. The discharge from each ear, after the incision, was copious, and a bacteriological examination showed a streptococcus infection upon one side and a staphylococcus infection upon the other.

Cases of this character repeat themselves so frequently to those of us whose opinion is asked to determine the condition of the ear during the progress of an acute disease, that we always regard every acute inflammation of the middle ear, no matter how mild in character, with suspicion. The only safe course to follow, in these cases, is early myringotomy, with the evacuation of the discharge. While occasionally we may incise a case in which the fluid within the tympanum is absolutely sterile, and represents simply a serous exudate, due to venous congestion, we will find in the great majority of cases, that the ear is the seat of an acute suppuration. The temperature, in these cases, is usually a guide to the virulence of the infection. In cases where the temperature is elevated only one or two degrees, it may be well to wait for a day or two, to see if the exudate will be absorbed; in other words, to see whether the system will develop sufficient antitoxin to overcome the constitutional infection, as indicated by the temperature. The wisest course, however, in all these cases, is early myringotomy.

So much for the cases of acute suppuration within the tympanum. The cases of suppuration which are most frequently neglected are those of a chronic suppurative inflammation of the middle ear. If any general practitioner would institute a systematic examination of all the patients who come under his care, I think he would be surprised to find how many are suffering from a chronic suppurative inflammation of the middle ear. These cases do not, as a rule, seek advice unless the discharge from the ear is profuse, or has a bad odor, or unless the ear is painful, or unless they seek relief for impairment of the function of audition. If one ear alone is affected and the opposite ear is perfect in function, the patient very frequently neglects altogether to speak of the suppuration upon the one side. This is particularly true of those cases in which the discharge is slight in amount and is in-

mittent, instead of constant. A number of cases of this character have come under my observation in the last few years, some of them presenting symptoms of such severity as to make them worthy of note.

A boy, 16 years old, presented himself recently at my clinic at the New York Eye and Ear Infirmary. He had had a discharge from the ear, intermittent in character, since early life. For a few days before he came under observation he had suffered severe pain in the left ear, and the discharge had been fairly profuse. He was seen by one of the assistants in my clinic, who made a free incision in the drum membrane, gave the boy directions to irrigate the ear, and sent him home. Two days later, the boy entered the hospital, with a temperature of 105.5. He then gave a history of having had several severe chills, and close questioning revealed the fact that these chills had persisted for a week. There was a profuse fetid discharge from the left ear. The boy's mental condition was perfectly good. He complained of absolutely no pain in the ear or in the head, and there was no tenderness on palpation over the mastoid or along the course of the internal jugular. Examination of the *fundus oculi* showed double choked disc, the lesion being more marked upon the left side. The temperature fell from 105.5 to 100 in the course of a few hours, and inside of 24 hours rose again to 106. On admission to the hospital, auscultation of the chest failed to reveal any abnormal signs. Thirty-six hours after admission, there was some dulness over the lower lobe of the right lung posteriorly, with fine crackling râles on auscultation. The blood count showed a leucocytosis of 26,000. The diagnosis, following the temperature curve, was perfectly clear. It was one of septic thrombosis of the lateral sinus, with probable extension into the jugular vein and beginning septic pneumonia upon the right side. This latter condition was also indicated by the blood count. Operation was undertaken for the relief of the septic thrombosis, although the secondary involvement of the lung rendered the prognosis exceedingly grave. The radical operation was performed, and the mastoid antrum was found to contain some broken-down cholesteatomatous material. No pus was found in the mastoid. The lateral sinus was then exposed, and this was found to be occupied by a decomposed clot. The internal jugular was thereupon rapidly exposed, and was found to be occupied

by a clot down to a point where it joined the innominate vein. A ligature was placed about the jugular, just above the innominate, and the entire vein was excised as far as the base of the skull. The wound was then rapidly closed with sutures. The patient's temperature fell immediately after operation, but on the following day he developed a pneumonia in the lower lobe of the left lung, and died of septic pneumonia about 36 hours after the operation.

We have here, then, the case of a patient, apparently in perfect health—aside from an aural discharge which had occasioned him practically little inconvenience—until less than a week before his death from septic pneumonia, depending upon this middle-ear condition. An early operation for the relief of this condition could certainly have saved the patient's life.

The following case will, I think, prove the truth of this statement: A young girl, aged about 14, was admitted to my service at the New York Eye and Ear Infirmary, with a temperature of 104. She had been under the care of one of the house staff for a few weeks on account of a chronic suppuration of the right middle ear. The aural discharge, under appropriate treatment, had practically disappeared. When I examined the patient upon admission, I found a large perforation, caused by the destruction of the entire *membrana vibrans*. The remnants of the ossicles were easily made out in the *membrana flaccida*, and were displaced upward and backward. The most careful examination of the tympanic vault, by means of an angular cotton-tipped probe, failed to reveal any purulent secretion. There was absolutely no tenderness over the mastoid and none over the jugular. The patient complained of nothing except the *malaise*, due to the temperature elevation. Two hours after admission the temperature rose to 105.5, and I immediately had the patient placed upon the operating table. On opening the mastoid there was a gush of very foul fluid from the antrum; the fluid pulsated, distinctly showing that it was in contact with the dura. A rapid radical operation was done, together with complete ablation of the mastoid process. The dura was exposed for a considerable area over the lateral sinus, and posteriorly over the cerebellum. The sinus wall was incised, and a clot was found in the lumen of the vessel. This clot was removed and free hemorrhage was obtained from the torcular end of the sinus, but none from the lower extremity. As the cere-

bellar dura seemed somewhat necrotic, the cerebellum was explored, with negative results, and the dural wound was therefore sutured. The internal jugular was now exposed from a point just below the omohyoid muscle to the base of the skull. The upper portion of the jugular was found to contain a clot, and the entire vein was excised. The wound in the neck was closed with sutures, and the mastoid wound packed. The patient was returned to bed, and from the time of the operation the temperature never rose above 100. The patient made an absolutely uninterrupted recovery. Upon microscopical examination, the walls of the veins were found to be infiltrated with streptococci.

In this instance the patient applied for admission to the hospital before the disease had advanced sufficiently to be beyond the relief of operative measures. Had the patient whose case was narrated before presented himself earlier, or had the radical operation been insisted upon at the time of his first appearance at the hospital, no doubt his life might have been saved.

It is interesting to note that in both these cases we had to deal simply with a middle-ear suppuration, and that in neither of them was there at any time tenderness over the mastoid process.

I have related these two cases in detail simply to impress upon your minds the fact that a suppuration within the middle ear may infect the lateral sinus, jugular bulb and internal jugular, without ever causing any mastoid complications whatever, or without causing any severe pain. I have seen, during the last winter, a case of acute suppuration in which the jugular bulb was infected, and in which operation was followed by complete relief, without any mastoid involvement.

These cases, I think, should impress upon the minds of every careful practitioner the necessity of remembering that in every middle-ear suppuration we have a possible focus of inflammation which may extend rapidly to either the intracranial blood vessels or the jugular bulb, and may cause a profound systemic infection and death in a very short time, without the appearance of pronounced local symptoms, such as pain in the ear, tenderness about the ear, etc.

So much for the involvement of the large blood vessels about the ear in cases of chronic suppuration. In two cases which I have operated upon, in one of which there was only a very slight discharge from the ear, I found upon performing the radical

operation that the dura had been eroded over the tympanic roof, and that a probe passed through this erosion into the brain substance. In both these cases, treated by the radical operation, complete and uninterrupted recovery took place. Neither of these patients had suffered from any cerebral symptoms whatever, and yet it is easy to understand how some infection from without might have caused the rapid development of a cerebral abscess.

That I have not overdrawn the picture, and in order to show you that these statements are not those of an enthusiast in one line of work, I beg to give certain statistics, which have been gathered from the various large hospitals here and abroad.

In the *British Medical Journal* for 1890, Vol. I, p. 634, Pitt reports that in 9,000 consecutive autopsies, held at Guy's Hospital, between the years 1869 and 1888, 57 deaths were due to aural suppuration, or one in every 158 autopsies.

In the Vienna General Hospital, between January 1, 1873, and December 31, 1894, Gruber (*Monatsschrift für Ohrenheilkunde*, 1896, p. 311,) reports that out of 40,073 autopsies death was due to aural suppuration in 232 cases, or in one case out of every 173.

In the Copenhagen Hospital, Poulson (*Archiv für klinische Chirurgie*, Vol. LII, Section 2), out of 14,580 autopsies, found death due to aural suppuration in 48 cases, or one in every 303.

In the Hunterian Lectures, published in the *Illustrated Medical News*, London, 1889, Barker found that out of 8,028 deaths, occurring in three of the London hospitals, during twelve years, in 45 cases death was due to aural suppuration, or one in every 178.

Remembering that in all these records we are dealing with large institutions, and with general causes of death, it seems that these statistics demonstrate clearly the great fatality of middle-ear suppuration. These figures must show, with a fair degree of accuracy, the number of deaths which actually occur as the result of some suppuration within the tympanic cavity.

When we come to consider the vast number of general diseases, both acute and chronic, which must be included in the report of these autopsies, it seems to me that the number of deaths due to this one condition is extremely large.

What concerns us more, however, is the statistics of our special hospitals, that is, those institutions in which diseases of the ear alone are treated.

In the *Archiv für Ohrenheilkunde*, Vol. XX, p. 81, Bürkner states

that out of 33,017 cases of aural disease of all kinds coming under his observation, 104 cases died from the effects of aural suppuration, or one in every 317 cases.

Randall, of Philadelphia, in the *Transactions of the American Otological Society*, Vol. V, Part 1, p. 101, out of 5,000 aural cases, reports 15 deaths due to middle-ear suppuration, or one in every 333 cases.

I have looked over the statistics of the New York Eye and Ear Infirmary, for the past eight years, and find that during this period, 64,858 cases have been treated in this institution. Among these, there have been 20 cases of cerebral abscess, 46 cases of simple sinus thrombosis, 24 cases of sinus thrombosis in which the internal jugular has been ligated, 119 cases of epidural abscess, seven cases of cerebellar abscess, and two cases of otitic meningitis. These records are accurate, excepting as regards the cases of otitic meningitis. A careful record of these latter is not found in the reports, as many were not subjected to operative procedures, and have consequently not been reported in the statistics of the hospital. It must be remembered that in my own statistics, as well as in those of Randall and Bürkner, all cases presenting at the clinic, for any cause whatsoever, have been included in this report; these include cases of impacted cerumen, inflammations of the external auditory canal, congenital malformations of the ear, in fact, every aural lesion is included in the total number of cases admitted to the clinic. From my own statistics, it will be seen, that out of 64,858 aural cases, 218 suffered from some intracranial lesion, or one in every 297 cases. These statistics do not record the number of deaths, but simply the occurrence of some severe intracranial lesion.

Analyzing these statistics of the New York Eye and Ear Infirmary more closely, we find that out of 64,858 cases, 19,323 suffered from purulent *otitis media*. The lesion was acute in 4,836, and chronic in 14,487. In other words, there were 19,323 cases of purulent *otitis media*, out of which number 218 suffered from some severe intracranial lesion, or one case in every 88.

This number of serious complications is certainly large. The figures must be considered accurate, however, covering, as they do, the work of eight individual surgeons. We have no means of determining from these statistics, whether the intracranial complications occurred more frequently in the cases of acute pur-

ulent *otitis media*, or in the cases of chronic purulent *otitis media*. Knowing, as we do, however, that in the large majority of cases a severe intracranial complication ordinarily occurs more frequently as the result of a chronic purulent inflammation than as the result of an acute purulent inflammation, we must assume that these statistics form no exception to the rule, and that in the great majority of cases, the intracranial complication is the result of the chronic purulent inflammation rather than of an acute inflammatory process.

I fully appreciate that I am not before you either to relate a series of cases or to quote statistics, however interesting they may be, but to perhaps make some suggestions as to the relief of the condition which constitutes the basis of my paper. I think that the cases which I have cited, and the statistics quoted, are sufficient to demonstrate the importance of the condition.

In speaking of measures of treatment I shall exclude the cases of acute suppuration of the middle ear. The treatment of these you all know; that is, early and free incision of the *membrana tympani*, securing perfect drainage, and subsequent cleansing of the ear in order to effect an evacuation of the inflammatory products. These measures, instituted early, are sufficient in almost every case to relieve the condition and to prevent its extension either to the mastoid or to the intracranial structures.

The cases which most concern us, then, are cases of chronic suppuration. Here the first indication is to maintain a condition of thorough asepsis as regards the ear. This is best accomplished, I think, by having the patient irrigate the ear from one to three times daily with an antiseptic solution. This removes all discharge present in the canal and keeps the parts practically sterile. In certain cases this treatment will result in a complete cure.

It is always to be borne in mind that whenever we have a chronic discharge from the middle ear, the upper air passages should receive attention. Any adenoid vegetations present should be removed, and the patency of the nasal chambers should be secured by the proper local treatment of hypertrophied mucous membrane within the nose or by the correction of septal deformities. These operative procedures, directed toward the upper air tract, when combined with the local cleansing methods above detailed, will frequently be followed by satisfactory results and a permanent cure,

when cleansing alone, without attention to the upper air passages, will result in signal failure.

By cure I mean that there will be a complete dermatization of the lining membrane of the tympanic cavity, and although a perforation of greater or less size may still persist in the tympanic membrane, and may resist all efforts directed toward obtaining its cicatrization, the middle-ear cavity will become dry and remain so. In other words, we have a dermatization of the mucous membrane lining of the middle ear. When this condition is obtained, and the ear remains perfectly dry for one or two years after the cessation of all local treatment, the patient is in a fairly safe condition; that is, the chronic suppuration has practically been cured, and involvement of the intracranial structures is probably no more apt to take place than in a healthy ear.

The appearance of a discharge from time to time, however, should be looked upon with suspicion. It is exactly in these cases of intermittent discharge, and in cases where there is a large perforation, that the surgeon frequently feels secure and believes that the suppurative trouble has entirely ceased, when, in reality, there remains a small focus of suppuration in the upper portion of the tympanic cavity which at any moment may become active and be followed by the gravest symptoms.

The appearance, then, of an intermittent discharge in cases of chronic suppuration should always be looked upon with suspicion. Whenever this discharge has a fetid odor, and whenever on introducing a curved probe behind the posterior fold, small scales of cholesteatomatous material can be extracted, the physician is warranted in the assumption that the focus of suppuration still remains, and that the patient is in great danger unless this suppurative focus is removed and a completely healthy bony cavity secured. The truth of this statement is well borne out by the case already cited, in which there was a large perforation in the *membrana tympani* and only slight discharge, and yet on operation an erosion of the dura was found.

What is the proper plan of treatment in cases of aural discharge which do not yield to cleansing or when only a slight discharge appears from time to time? I believe it should be an invariable rule, wherever we have a chronic discharge, profuse or slight, constant or intermittent, which will not yield absolutely to cleansing measures, but which recurs at intervals of a few weeks to a

few months, that the entire middle ear and mastoid antrum should be opened and thrown into one large cavity, continuous with the external auditory meatus. In other words, that a complete radical operation should be done. As a tentative measure it is wise, in some cases, to secure absolutely perfect drainage, and to attempt to remove all diseased bone by the simpler operation of excision of the ossicles and curettement of the tympanum. This procedure can be carried out through the external auditory meatus, and in a little over 50 per cent. of the cases results in a complete cure. I have followed cases of ossiculectomy for many years, and while in some the results are permanent, in quite a large proportion of the cases which seemed to be cured one or two years after the operation we find that later the suppuration returns, and that these cases must then be subjected to the radical operation.

With the improved technique of today, I consider the radical operation as but little more dangerous than the simpler operation of excision of the ossicles, while the permanency, as regards the results, is vastly superior to that obtained by the simpler operation. If we perform the operation as it is done at the present day, by applying Thiersch grafts to the interior of the bony cavity, either at the time of the primary operation, or as soon as the parts are covered with healthy granulations, the period of convalescence is very much shortened. In favorable cases the ear will be practically dry at the end of from four to six weeks after the operation. The posterior wound is sutured, in these cases, at the time of operation, and primary healing is the rule, so that the patient is able to go without any external dressing at the end of seven or eight days after the operation, and is then able to resume his ordinary avocation.

The radical procedure, then, of complete exenteration of the tympano-mastoid cavity, is the procedure which should be adopted in the obstinate cases of chronic middle-ear suppuration.

Regarding the danger to life of this operation, out of 123 cases operated upon there have been three deaths, one from pneumonia, one from meningitis, which was present before the operation, and one which may be possibly attributed to the operative procedure. The cause of death in this case was obscure, and I am inclined to think was due to a cerebellar abscess. If this is a fact, the abscess was present before the operation, and would

therefore be an argument in favor of an early operative procedure in these cases.

The danger of facial paralysis is often spoken of as a possible factor which should deter the surgeon from advising this operation. Out of these 123 cases I have not seen one permanent case of facial paralysis, although temporary interference with the function of the facial is common, especially where the cavity is grafted.

The effect of the radical operation upon the hearing is also worthy of note. Out of 63 cases in which the hearing has been carefully examined, in only one case was the hearing made worse. In all the other cases it was either improved by the operative procedure or remained the same as before the operation.

With reference to the effect of the operation upon the purulent otitis, I would say that out of 98 cases operated upon, 71 were cured; in 16 a slight discharge remained at the time the patients were last seen; two patients died from causes already given; in five cases the discharge still continued profuse after the operation, and in four cases the result of the operation was unknown, the patients having disappeared from observation.

Out of this series of 98 cases, in 63 the wound was lined with Thiersch grafts; in 43 cases the grafts were applied at the time of the primary operation, and in 20 cases they were applied at an interval of from five to ten days after the primary operation.

The introduction of the skin grafts undoubtedly shortens the time of convalescence. Of the grafted cases, the shortest period before the ear was completely dry was about three and a-half weeks, while the longest period was a little over two months. The average time, I should say, was from five to six weeks in favorable cases. Where the skin grafts are not applied the ear does not become dry for a period of about eight weeks, six weeks being a very short time for the tympanic cavity to become thoroughly dry where allowed to heal by slow dermatization.

After going over carefully the records of this series of operations, I am more and more inclined to advise the radical operation in all cases where a suppuration of the middle ear cannot be absolutely checked, and where the ear does not remain dry indefinitely after the cessation of cleansing. Too many times both the patient and the physician are lulled to a sense of security by the marked improvement which follows tentative measures directed

toward the relief of aural suppuration. By tentative measures, I mean those suggested a few moments ago in this paper; that is, aseptic cleansing of the ear and attention to the condition of the upper air tract. Too frequently the value of these measures is overestimated. So long as the patient keeps up the treatment the ear gives practically no trouble, and both patient and physician become convinced that the condition is one which can in no way prove serious. Gradually the local measures are abandoned, and before either the patient or physician realizes it the ear is in the same condition that it was before these measures were instituted. I have seen this repeatedly, not only in my clinic, but in private practice. In fact, I have been guilty on a number of occasions of advising patients to wait before consenting to an operation; the ear at the time of my examination has seemed perfectly clean, there has been practically no discharge, and I have felt convinced that the patient was thoroughly cured. Examining the same case a few days, or sometimes a few months, later, after the treatment had been entirely abandoned, I found that the discharge had returned, that it was foul smelling, and that there was considerable inflammation within the tympanic cavity.

The general practitioner and the otologist as well, cannot appreciate too fully the grave import of any suppuration within the tympanic cavity. Unless tentative measures are followed very quickly by complete relief, and unless the discharge from the ear, as the result of these measures, ceases permanently, the tympanic cavity becomes dermatized, and the discharge remains absent for months or years, the patient cannot be considered as cured. This dermatization of the tympanic cavity is the only real cure for these cases. The mere cessation of the discharge for a number of weeks or months, or its complete cessation during the period when the ear is being irrigated anywhere from once a day to once in four or five days, simply may mean that the symptoms are being masked, and that we still have a dangerous focus of disease in the tympanic cavity, which is capable at any time of causing severe and even possibly fatal sequelæ.

The results reported from the radical operation are certainly so gratifying, as regards the ultimate condition of the patient, and the freedom from danger resulting from the operative procedure is so slight, that I believe the surgeon is warranted in recom-

mending this procedure in all cases which do not yield readily and completely to simpler measures. Naturally, the age of the patient, his general condition, etc., must be taken into consideration in advising the operation. For instance, I would not advise a patient who had suffered from purulent otitis since childhood, and who had reached the age of three score and ten, to submit to an operation of this kind, provided tentative measures controlled the suppurative process, even if these tentative measures must be continued throughout the rest of his natural life. On the other hand, my advice would be very different where the same condition existed in a patient twenty or thirty years of age. It is my belief, however, that in the next decade all medical men will realize more quickly the grave dangers which may be incident upon a chronic suppuration of the middle ear, and will urge early operative interference in the large majority of these cases.

I am beginning to feel now, whenever a patient consults me in regard to a chronic suppuration of the middle ear, very much as the general surgeon feels when consulted by a patient suffering from recurrent attacks of appendicitis. We never know what a diseased appendix is going to do in the abdominal cavity, but we do know that it constitutes a very serious menace to the patient's life. We are also certain that its removal by operative measures is comparatively simple, and practically devoid of risk. I take the same ground with reference to a chronic middle-ear suppuration. A persistent suppurative inflammation of the middle ear should be relieved by radical measures, and the patient thus put beyond any possibility of danger. I believe, with our improved technique, that we can promise these patients almost absolute relief, with practically no risk to life.

A PLEA FOR THE EARLY TREATMENT OF
STRABISMUS.*

BY OSCAR WILKINSON, A. M., M. D.,

Washington, D. C.

In offering a paper to this Society on the subject of strabismus I would feel like making an apology were it not for the fact that the treatment of squint has been revolutionized within the past two decades. The works of some of the modern oculists of this country and Europe have so modified our ideas of strabismus and so improved the treatment of same, that today we enter upon its treatment with the same confidence, in cases seen early, as the surgeon goes to a case of simple fracture.

There are two methods of treating strabismus: one is scientific, which consists of the optical correction of the error of refraction, development of the acuteness of vision, the training of the fusion centers and muscular exercise. This method applies itself to the cause. The other is operative and empirical, and seeks only to relieve a deformity. The scientific method, which was introduced by Donders and Helmholtz in 1860, and brought to a greater perfection by the aid of such men as Landolt, Wecker, Javal, Maddox, Stevens, Duane, Reber, Savage, Worth and Browne, has been steadily gaining ground, and it is to be hoped that it will be so perfected that it will do away with the necessity of the operative method.

Since the time of the itinerant oculist Taylor (*Annals of Ophthalmology*, July, 1904), or at least since the time that the operation was suggested by Prof. Stromeyer and put into execution by Prof. Dieffenbach, in 1839, the operation of tenotomy has been in vogue. During the balmy days of Duffin, Calder and Critchett the operation was performed on almost all cases without regard to condition, duration or age. This operation, as all other fads, had its age of popularity, and suffered a reaction until a time came when the treatment of strabismus was in such ill repute that the general practitioner was slow to advise treatment for same, or even advised against treatment, telling persons to "wait and the child will outgrow it." Such pernicious advice could not fail to have its evil results, and to this day it exerts its influence on the

* Read before the Medical Society of the District of Columbia, November 16, 1904.

laity, and, I regret to say, some few of the profession. It is not uncommon to see these cases coming to the oculist at the age of six years or more, with a history of strabismus from almost infancy, stating that the family physician had advised them to defer treatment until they were old enough to go to school. We hope that the day for such advice has passed, and that these cases will be sent to the specialist at the very beginning of their trouble.

Today the early treatment of strabismus is so successful and so void of evil results that the man who advises his patients to neglect treatment does them an everlasting and irreparable injury, and hinders medical progress. If these cases are not seen until they are eight to ten years old, as a rule they are more or less amblyopic in the deviating eye, and that often without the power of central fixation. It is just as true that the early and preventive treatment of these cases gives the most flattering and gratifying results as it is with cases of tuberculosis. It is in the early cases that we are able to get absolutely perfect results, both as to function and cosmetics, and that, too, without an operation. With the correction of the errors of refraction, development of the acuteness of vision, training of the fusion centers, and judicious muscular exercise we see these defects clear away never to return. It is a delight to treat these cases when we can see them early, *i. e.*, before any permanent damage has been done, but there is nothing more sad to the ophthalmologist than to have one of these cases come to him at the age of ten, twelve or more years, with a history of strabismus from infancy, with almost total blindness of the deviating eye from non-use. In these cases we expect nothing from treatment except a cosmetic result, and that is to be obtained after one or more operations, while if the case had been seen sooner the eye would have been both useful and straight, and that without an operation.

Blindness from disuse is due to gross neglect on the part of the child's parents or of the physician, or gross ignorance on the part of the oculist in charge. If a child is seen early, there is no excuse for blindness from non-use, and when it is present some one is to blame. These are the cases that deviate after tenotomies, and have thus brought that operation into disrepute. The early treatment of these cases insures good vision in both eyes, insures a developed fusion center and useful binocular vision. After the central fixation is secured, and the fusion faculty is developed to

a normal state, there will be but slight tendency to deviation. This is proven by the fact that cases of esophoria that are operated on after the fusion faculty and central fixation are developed seldom if ever deviate.

This waiting from year to year before the treatment is begun is throwing golden opportunities away and increasing our difficulties. What is the result of waiting? Granting that the deviation does decrease at times, as the child advances in age, it is the experience of such men as Worth, Valk, Browne, Stevenson, Reber, Maddox and Jackson that perfect results as to function are seldom possible to be obtained—*i. e.*, cures are not possible in delayed cases. In children of eight to ten years and older, there is not much to be expected from fusion training. Mr. Worth is of the opinion that fusion training is not possible after six or eight years. As to this, we may not all agree, but we all do know that fusion training in children older than this is exceedingly difficult, and what little is gained is dearly paid for. By waiting, the treatment resolves itself largely into that of an operation, while the function of the eye is lost.

If the family physician will make it clear to the mothers of these little sufferers that if they will see their oculist early that an operation will probably be avoided, and that the child's eye will be far more apt to be restored to usefulness, I feel sure that we will see these cases much sooner than we have been seeing them, and the operation of tenotomy will almost disappear. It is as much the duty of the family physician to see that these cases are brought early as it is to send early in cases of glaucoma. You do not advise your patients with talipes to wait till they are ten to fifteen years old before seeking relief, but you send them early to the surgeon, while he is yet able to get more perfect results and at a less sacrifice on the part of the patient. The delay in cases of squint is just as fatal in its results.

Dr. Browne says, in his admirable treatise on *Squint* (Browne & Stevenson), that squint would be a very rare occurrence, except from remote country districts, if it could be seen soon after the "first glide of the eye." Holthouse found that 92 per cent. of cases seen early were improved, and that 60 per cent. were cured by glasses alone. (*New York Med. Jour.*, Nov. 5, 1904.) Reber says: "* * in the child series (under seven years) 88 per cent. of the whole number were benefitted by glasses

and 72 per cent. were cured. In the adult series, but 22 per cent. of the whole number were benefitted by glasses, 16 per cent. were cured, and 64 per cent. were absolutely uninfluenced by glasses." Dr. St. John Roosa says (*New York Post Graduate*, 1897, p. 721), "I believe convergent squint depends almost entirely, with an exception that does not reach one per cent., on a condition of the eyeballs * * * called hypermetropia. I believe that squint depends upon just what Donders said it did—upon an abnormally short antero-posterior eyeball." The only relief for hypermetropia is the use of glasses, and the early application of them in these cases will be far more apt to bring about a cure than if they are deferred until a habit is formed, or the muscles have undergone a change in their relative strengths due to an abnormal position.

I heartily indorse the sentiment expressed by Dr. Hale (*Jour. A. M. A.*, Feb. 20, 1904,) when he says, "Squint ought to be made an annually discussed subject at mother's meetings." It is only through the family physicians and the mothers that we hope to see these cases before some serious damage has been done. We look to the physician to educate the laity out of the false and injurious idea that these cases should be allowed to go untreated until they are old enough to go to school. Reber's statistics (l.c.) show that the average age at which the squint begins is about three years, while the average age at which treatment was applied for was seven years in private practice, and much older in hospital practice. These children, as here shown, have been allowed to wander about for four years without treatment, increasing the difficulties in way of a cure. The advice that these mothers have heretofore been too often receiving is, "Let the child go, it may grow out of it; if it does not, after it gets older you can send it to your oculist and he can clip a tiny little muscle and the child will be all right." Such advice is doubly wrong. In the first place there is no set of operations that requires such delicacy, discretion and judgment in their execution as those on the extra ocular muscles, and instead of being a simple matter, it is one that is fraught with many complications. In the second place, the child is passed along until an age is reached when a cure is impossible, or is attained with the greatest patience and diligence, both on the part of the surgeon in charge and the patient, and often an operation, tenotomy or advancement, becomes necessary.

I always do a tenotomy with some misgivings. It is always with regret that I do a tenotomy or an enucleation. I feel that if our therapeutics were what they should be, and we could see these cases early enough, we could avoid these two operations in the majority of instances.

There is an early tendency to squint in a great number of children. Babies roll their eyes about aimlessly and fixation is acquired by practice. After fixation is developed fusion of the two images naturally follows. Anything that will interfere with the acuteness of vision will throw the burden of the work on the good eye and permit the weaker one to wander more at will, until finally the stronger internal rectus muscle pulls the eye inward, being assisted by the natural stimulus of accommodation. If one eye has a greater amount of hypermetropia or of astigmatism, or if there happens to be a slight opacity of the cornea from an old phlyctenular ulcer, central fixation and fusion is made more difficult and the child is far more apt to squint. To prevent this we must see these cases early and remove the exciting cause, and then the child is able to develop in a normal manner. In some children there is an inherent weak fusion faculty, and to remedy this we must see them early. Mr. Worth has shown that out of 1373 cases of squint, a hereditary tendency was manifest in 711, or 51 per cent. Jensen gives this percentage as high as 70.

In squint the education of the vision has not been sufficiently dwelt upon. The younger an organ is the greater will be the influence of judicious exercise. If the acuity of these eyes were properly developed at an age when we can get the greatest results from exercise, amblyopia *ex anopsia* would be such a rarity that few would ever see it. There is no reason why the vision of these deviating eyes should not be brought to normal. In the young the sight can be developed as well as the function of any other organ. With the proper care of the deviating eye we expect its sight to be as good as that of its fellow. Delay here means a failure. The older the child the slower the progress, and when it is too old the vision can seldom be brought to normal.

I will say just a word as to the spontaneous cures of squint. That there is such a thing as a spontaneous correction of the deviation no one can doubt, but we know that it is exceedingly rare. As to this Dr. Browne (l. c.) has the following interesting and appropriate remarks to make: "To the ophthalmic surgeon

these cases are rather like ghosts—never seen by first-hand but always heard of by second-hand report.” Granting that we do see one of these cases once in a great while, it fails to be any argument for the delay of treatment, as it is the experience of every oculist that these eyes are more or less amblyopic, and do not, as rule, functionate with their fellows. The eye is as a blind eye from any other cause, and the so-called spontaneous cure of squint is no cure at all, but only a relief of an abnormal position of the eye.

We are often asked “When should the treatment of squint begin?” There ought to be but one answer to this question. The day that the deviation is noticed is the best time to begin its treatment. We have already seen the baneful results of delays, and I can assure you that the early treatment is as certain and harmless as the later is uncertain and injurious. The pernicious custom of having these cases wait till they are old enough to go to school is so common that I am constrained to bring its evil results to your notice with as much force as possible. I heartily agree with the remarks of Dr. Browne (l. c.) when he says, “If the general practitioner will recognize the fact that all children are liable to squint, and that squints in the periodic stage are very curable, whereas those in the habitual stage are very difficult to cure, and that treatment should be begun, no matter how young the patient may be, immediately after the first ‘glide of the eye’ has been observed, squint will almost vanish.” Such opinions from competent men ought to be kept so constantly before the mind of the general practitioner that he would feel he was not doing his duty by his patrons until he had not only advised these patients to take treatment but had urged them to do so.

Treatment.—The simplicity of the early treatment of these cases forces me to make some general remarks on that line. The indications for early treatment are the correction of the errors of refraction, building up the general health, improvement of the visual power of the deviating eye, development of the fusion centers and muscular exercise.

The first thing that should be done in all cases is to paralyze the accommodation thoroughly by the use of atropine for several days, and correct the errors of refraction as determined under the influence of the mydriatic. Full or almost full correction should be given for constant use. The second step is to attend to the child's general health. I think that this phase of the treatment of squint

is too much neglected in practice, and too little attention is given to it in the works on the treatment of strabismus. Gross impairment of the child's general health is sufficient to cause an unbalanced condition of the muscular equilibrium in cases that are already predisposed that way by errors of refraction, anisometropia or a slight opacity of the cornea.

Improvement of the vision of the deviating eye is to be obtained by the use of atropine in the good eye, thus forcing the use of the deviating eye for near. If this fails it may become necessary to tie up the good eye for several hours at a time each day and make the patient use the defective eye for everything. In recent cases the vision will greatly improve, and in a little time. This should be kept up until the vision of the originally deviating eye is as good as that of the other, where this is possible. The development of the fusion centers is of no less importance. To Mr. Worth, of London, we are indebted for bringing this part of the treatment into special prominence. His amblyoscope is one of the most valuable instruments for the development of the fusion faculty. Muscular exercise is best given by this instrument, and at the same time that fusion training is being given. With me the fusion trainings and muscular exercises are inseparable. This use of the Worth instrument is not recommended by Mr. Worth, probably because he is not an over warm advocate of muscular training. If the images are made to separate as the exercise is being given we will get an exercise of the weaker external rectus muscle and at the same time exercise the fusion centers.

Dr. D. K. Shute commended the paper as being exceedingly able, practical and scientific. There was no question as to the timeliness of the plea. He had under his care three children, seven, eight and eleven years of age respectively, with convergent strabismus due to farsighted astigmatism; on correcting the difficulty with lenses, the convergent strabismus remained only in the oldest child who had been so affected for six years. She was the daughter of a physician who had been impressed with the idea that his child would eventually "outgrow" the trouble. Some did outgrow it unfortunately, because others were thus led to defer proper treatment until they came to tenotomy, a barbarity in the light of our present knowledge of ophthalmology, unless associated with orthoptic exercises. In other cases when treatment was too long delayed, though a simple tenotomy might serve a cosmetic purpose, it did not restore the vision of a squinting eye.

Dr. Shute preferred the operation for advancement—advance

the weak rather than weaken the strong muscles. In any case, the treatment suggested by Dr. Wilkinson was the proper one for early life. Dr. Shute reviewed this treatment. He wished that every member of the Society could have heard the paper. It was wonderful how many children were made blind today by the washing of the eyes of the newly-born with mother's milk, instead of using the Crede method. It was also wonderful how often iritis in its early stages was mistaken for "pink-eye," with varying results. He agreed with all that Dr. Wilkinson had said.

Dr. Belt said that the paper so thoroughly covered the subject that little more could be said in the way of discussion. He was not quite as optimistic as Dr. Wilkinson as to the regaining of vision in amblyopic eyes. The cause of the strabismus in some cases was such that no matter how early treatment was instituted perfect vision could not be obtained. His routine treatment consisted in the use of mydriatics, properly fitted glasses, exercise, etc. Seek the cause of the trouble, and remove it if possible, hypermetropia, corneal opacity, etc. Little could be accomplished unless the cause was removed. Sometimes, however, no cause could be assigned. Some cases could be helped only by tenotomy. He preferred this to advancement, as being a simpler operation. Both, however, were useful in certain cases.

Dr. Reyburn said that he was glad that he had heard the paper. He was afraid that he had in some cases neglected the early treatment advised by the essayist. The paper was an admirable one, and should be heard by all.

Dr. Wilkinson, in closing, thanked those who had participated in the discussion. In answer to Dr. Belt he remarked that blindness was not always due to squint. Very few oculists still clung to the congenital idea of this blindness. He quoted authorities to show that amblyopia increased with the age of the patient, showing that it was due to lack of use of the affected eye. He presented the paper because patients were coming to him at about the age of seven or eight in whom the vision in the deviating eye was much below that of the other. He wished to emphasize the fact that if treatment was instituted early, vision in the two eyes could be made equal; if, however, treatment was deferred, normal vision in the affected eye was never regained.

Dr. Franzoni inquired whether a strabismus which came on suddenly at the age of seven or eight years would respond to treatment?

Dr. Wilkinson replied that in the vast majority of cases squint came on gradually, being intermittent before it became constant; when it came on suddenly in children older than eight years, unless it was immediately after a shock or an acute illness, he would suspect paralysis. Very rarely was there any other cause to account for a sudden onset. They responded to treatment directed to the cause.

CASE OF PATENT URACHUS; OPERATION.*

By GEO. T. VAUGHAN, M. D.,

U. S. Public Health and Marine Hospital Service.

Dr. Vaughan reviewed the embryology of the urachus, showing how patency is occasionally brought about. The patient was a man 40 years old. There was nothing peculiar in his history. Had necrosis of the tibia at the sixth year, and it gave him trouble for five or six years. First noticed signs of present trouble at 17th year—pain and swelling just below the navel. Several days afterward pus, blood and urine escaped through an opening in the navel, and this has continued ever since. Much discomfort followed the closure of the opening for 24 hours or more. Had gonorrhoea at 20th year. At 34 had great pain in back on right side, radiating down ureter and thigh; laid up three weeks. These attacks followed each other for six years.

When first seen by Dr. Vaughan the patient was a tall, well-developed man, apparently well; he was anxious for an operation. Dr. Vaughan believed that there was also disease of the kidney. The bladder was filled with water, and a median incision was made on a grooved director, from the navel to the pubes. What appeared to be a secondary bladder appeared, and was dissected out. A very small opening was found between this and the bladder at its highest point. The specimen, in fact, resembles the bladder in structure, having an epithelial lining and muscular and peritoneal coats. The liquid in the urachus contained two and one-half grains of urea to the ounce. On the day following the operation the patient's temperature was 107 and pulse 125, yet he did not appear to be very ill. He improved, and was discharged three weeks later. Subsequently he had a chill, high temperature and symptoms pointing to involvement of the kidney. Dr. Vaughan removed a calculus from the right kidney, and the man has had no further trouble.

Dr. G. Brown Miller said that he had seen a number of instances of cyst of the urachus. A few days ago he operated upon a young girl for Meckel's diverticulum. She came to the Emergency Hospital Dispensary last summer, complaining of loss of flesh and strength; there was also marked anemia. Two months

* Reported, with specimen, to the Medical Society of the District of Columbia, November 16, 1904.

ago she had an attack which presented all the symptoms of appendicitis. Since then she had had a dull pain which totally unfitted her for work. Examination disclosed tenderness over the region of the appendix. She was very anxious that something might be done for her relief, and so last Saturday he did an exploratory operation. The diverticulum came into view at once; it was situated about twelve to eighteen inches above the ileocaecal junction. He removed the appendix and diverticulum, although the former was normal. In the bottom of the sac of the diverticulum were signs of inflammation, and it was this inflammation, in all probability, that caused the symptoms.

CASE OF OVARIAN CYST, WITH ABSCESS, SALPINGITIS AND APPENDICITIS.*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

The woman was first seen three days ago, and operation was performed today. From the symptoms a diagnosis of appendicitis was made, and in this opinion others concurred. Under an anesthetic a mass was found in the usual position, but its firmness was somewhat peculiar; Dr. Thompson called attention to this at the time. When the peritoneum was opened there was a gush of blood which made him think of an extra-uterine pregnancy. The mass, separated from its adhesions, turned out to be an ovarian cyst. During the manipulation an abscess broke and discharged; the sac was enucleated. The tube was found to be in a state of chronic inflammation and was excised. The appendix was also very much enlarged, and this, too, was removed. The case was interesting in the number of the lesions; it also illustrated the difficulty of making a diagnosis in some cases. He had no idea as to the source of the bloody fluid which escaped when the peritoneum was opened.

* Reported, with specimen, to the Medical Society of the District of Columbia, November 16, 1904.

NEW ETIOLOGY AND PROPHYLAXIS OF
APPENDICITIS.*

By A. F. A. KING, M. D.,

Washington, D. C.

The sailor's maxim: "Any port in a storm" might at this time not be unsuitable for the medical profession in its attempts to settle upon some cause for the dreadful calamity of appendicitis as it has occurred during the last one or two decades.

I say "dreadful calamity," I think, advisedly. Has it not been a calamity to us? The empty chair of the lamented Dr. Walter Reed,† is eloquent in reply. It is an universal calamity. It is puerile to assert that the mortality is small (less than one per cent.) under skillful treatment. This statement must always be qualified with several "ifs." If the case be operated upon early; if there be no gangrene and no pus, no general sepsis, no peritonitis, no error in the aseptic technique, and so on, conditions often beyond our control.

The fact that hundreds die annually from this disease cannot be ignored. I have here on the table, reports from two large hospitals in Philadelphia, in one of which there died from appendicitis during the years 1902, '03 and '04, 53 persons, and in the other during the years 1900, '01, '02 and '03, 128 persons: a total of 181 deaths in two hospitals of a single city in four years. Yet these cases must have received the best treatment medical science can devise.‡

Dr. John B. Murphy, of Chicago, recently reporting 2,000 cases operated upon by himself from March 2, 1889, to July 22, 1903 (*Amer. Jour. Med. Sci.*, August, 1904, pp. 187-211), remarks: "Appendicitis has come and it has come to stay, and the responsibility of its immediate recognition is on the general practitioner." That is to say, the disease should be recognized early and sent to the operating surgeon at once; if deaths occur because this is not done, the responsibility rests with those who fail to do it.

* Read before the Medical Society of the District of Columbia, November 30, 1904.

† Dr. Reed died of appendicitis, November 23, 1902.

‡ P. S.—"The total number of deaths reported as due to appendicitis in the United States during the census year (1900) was 5,111, of which 3,282 were males and 1,892 were females." (*Vital Statistics, Part 1, Twelfth Census*, p. ccxxxi.) (The above figures are quoted correctly but are erroneous in that the males and females together make 5,174 instead of 5,111.—A. F. A. K.)

But there is a greater responsibility resting upon the whole profession, that of revealing the *cause* of the disease and of its present frequency of occurrence. This is the layman's view; a not unreasonable one. But if the laity suppose the medical profession has been idle or derelict in this direction, they are mistaken. For years past the medical press has been teeming with theories in explanation of the recent frequency of appendicitis, but none has yet been settled upon as altogether satisfactory.

None of these theories explain the chronological history of the disease—the origin, rise and progress of what may be called our modern *appendicitic era*.

For example, Dr. Philip Marvel, of Atlantic City (*Jour. of the Amer. Med. Association*, July 30, 1904, pp. 313-318), has recently considered *influenza* as a causative factor in the increase of appendicitis, and supports his idea with numerous abstracts from foreign literature. But the recent epidemic of influenza came to us in December, 1889. It began in Russia; was in Moscow in November; Berlin by the middle of that month; reached London by the middle of December, and New York at the end of December, 1889, and then spread rapidly over our Continent (*Osler's Pract. of Med.*).

By reference to the tables (see page 419) it will be seen that the modern appendicitic era was beginning to manifest itself in the Boston City Hospital two or three years before 1889, and the records of the three London hospitals show that this era was well established in 1884, five years before the influenza epidemic of 1889. Moreover, the previous epidemics of influenza—those of 1830-33, 1836-7 and 1847-8—show *no increase* in the prevalence of appendicitis.

Another recent theory is that of Dr. George Rubin (*Journal Amer. Med. Association*, Oct. 29, 1904, pp. 1307-8), who maintains that the "accumulation of gases below the ileo-caecal valve and their *voluntary retention*" cause distension of the caecum, dilatation of the caeco-appendicular orifice, with consequent admission of foreign bodies, &c., leading to appendicitis. In support of his views he cites the rarity of the disease during infancy and early childhood, also among apes and monkeys, and the peasants of Russia, and its extreme rarity also in the natives of the Philippine Islands, South Africa, West Indies, New Guinea and Borneo. Yet the "voluntary retention" of intestinal gases by civilized

peoples has been going on for centuries, and it in no way agrees with the chronological history of our modern appendicitic era.

The same may be said of all other theories, so far as I can discover.

Now, what will furnish the desired explanation? In so far as the chronological history is concerned, the answer that I propose is this: Modern man has brought upon himself the infliction of appendicitis; he has kept up and is keeping up the *regularly progressive increasing* prevalence of the disease by the use—the *regularly progressive increasing* use—of that remarkably attractive and artificial appendage to his person—the graceful, beautiful, abominable bicycle.

The use of the bicycle not only explains the rarity of appendicitis in infants and very young children (see table), in apes, monkeys and semi-civilized peoples; but it also shows a striking chronological coincidence with the rise and progress of our modern appendicitic era, and the *modus operandi* of bicycling in producing appendicitis is not difficult to explain, as will be shown further on.

* AGE IN 228 APPENDICITIS CASES.

Age.	Cases.	Percentage.
20 months to 10 years,	22	10
10 years to 20 years,	86	38
20 " 30 "	65	28
30 " 40 "	34	15
40 " 50 "	8	3
50 " 60 "	11	5
60 " 70 "	1	$\frac{1}{2}$
70 " 78 "	1	$\frac{1}{2}$

* AGE IN 178 TYPHLITIS AND PERITYPHLITIS CASES.

Age.	Cases.	Percentage.
4 years to 10 years,	10	6
10 " 20 "	53	30
20 " 30 "	53	30
30 " 40 "	25	14
40 " 50 "	18	10
50 " 60 "	10	6
60 " 70 "	7	4
70 " 78 "	2	1

*From paper by Dr. R. H. Fitz in *Trans. Ass. Amer. Physicians*, Vol. I, 1886, page 114.

With regard to the chronological history of the two things, we note (see tables on pp. 418 and 419) that the appendicitic era *began* to manifest itself in the London hospitals about 1878 or '79, nearly ten years before it became positively recognizable in the hospitals of the United States. So with regard to the bicycle; its use became popular in England about ten years earlier than it did in America. Some of us who attended the International Medical Congress in London in 1881 may remember the surprise with which we saw so many bicycles in the streets. I was credibly informed that there were then in use, in London alone, 160,000 bicycles. Now, four years after this, namely, in 1885, there were only 30,000 bicycles *in use* in the entire United States, and only 6,000 *were made* and sold in this country in 1884 (*Growth of Industrial Art*, by Hon. Benjamin Butterworth, U. S. Government Printing Office, Washington, D. C., 1892, p. 112.)

Bicycles were first introduced in England in 1869 (*Encyclopaedia Americana*, Vol. I, 1884, article "Bicycle"), but awakened no interest in America until 1877, just after the exhibit of English bicycles at the Centennial Exposition in Philadelphia in 1876. American merchants began to import and sell English wheels in 1877. In 1879 there were only 500 wheels in use, but "the rapid growth of the next ten years could not be foreseen, while the *enormous increase* after 1888 would have then seemed simply incredible." (*Wheels and Wheelmen*, by Luther H. Porter, 1892, p. 4, &c.) How did this "enormous increase" in bicycle riders affect the appendicitis record?

In the Boston City Hospital (see table on p. 419) there were in 1888 five cases; in 1889 nearly four times as many, viz: 19. In St. Luke's Hospital, New York, there was in 1888, only one case, in 1889 three cases, and in 1890, seven times as many, viz: 22.

This leap in numbers is not so manifest in the smaller hospitals at this time, but a little later—in the early nineties—they all show a decided increase, and, coincidently with it came the "*safety wheel*" and the "*pneumatic tire*," the former removing the dangers of falling, the other reducing the disagreeable vibration of the machine of which many riders complained.

"It was in 1885 that the modern safety wheel got a start in England. In the two following years a few were brought over to this country. * * In 1889 it appeared as a serious rival to the 'ordinary (old high) wheel,' and in 1890 it began rap-

LONDON (ENGLAND) APPENDICITIS CASES IN

	St. Thomas' Hospital.			Middlesex Hospital.			St. Bartholomew's Hospital.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
1876	0	0	0	...	...	...	1	...	1
1877	3	1	4	...	...	...	2	...	2
1878	4	1	5	5	0	5	3	2	5
1879	4	3	7	6	3	9	1	2	3
1880	4	1	5	0	3	3	4	2	6
1881	7	3	10	5	5	10	1	0	1
1882	2	3	5	4	3	7	13	3	16
1883	5	1	6	12	3	15	7	8	15
1884	14	2	16	4	4	8	7	3	10
1885	8	3	11	12	1	13	9	7	16
1886	13	3	16	5	3	8	4	6	10
1887	14	2	16	2	1	3	10	2	12
1888	15	5	20	1	3	4	15	11	26
1889	12	9	21	18	2	20	28	7	35
1890	26	10	36	13	5	18	23	7	30
1891	21	5	26	10	4	14	19	8	27
1892	19	4	23	12	9	21	18	6	24
1893	20	10	30	14	5	19	29	10	39
1894	37	13	50	28	9	37	25	5	30
1895	42	17	59	24	15	39	32	9	41
1896	49	21	70	33	22	55	34	4	38
1897	78	24	102	41	30	71	...	...	...
1898	99	29	128	27	15	42	57	27	84
1899	99	42	141	44	35	79	63	24	97
1900	...	...	...	...	...	...	81	41	122
1901	...	...	...	47	50	97	81	39	120
1902	...	...	...	...	...	...	111	55	166

idly to displace it. Since then practically nothing else has been sold. Its suitability for all ages, conditions and sexes made it *immensely* popular." (Porter on *Wheels and Wheelmen*, p. 9.)

"Previous to 1889 a pneumatic tire was unheard of, but after 1893 a bicycle fitted with any other tire was a curiosity." (*Twelfth Census of the U. S.*, 1900, Vol. X, part 4, page 332.)

With the introduction of the safety wheel we should expect an increase in the ratio of appendicitis cases in *women*, and this occurred. Going back to 1886 (*Trans. Asso. Amer. Physicians*, Vol. 1, 1886, p. 114,) we find in one group of 247 cases 197 (80 per cent.) males and 50 (20 per cent.) females. In another group of 209 cases there were 156 (74 per cent.) males and 53 (26 per cent.) females; about the same proportion as found by Fenwick (*Lancet*, London, 1884, Vol. II, pp. 987 and 1039,) in 130 cases.

Dr. Norman Bridge, of Chicago, prior to 1890 (*Trans. Asso. Amer. Physicians*, 1890. See also *Boston Med. and Surg. Jour.*,

CXXII, p. 503), stated that "the appendix is *four-fold more liable* to inflammation in males than females."

(In preparing the tables the term "appendicitis" includes also "typhlitis" and "perityphlitis," which seemed justifiable, because in the earlier years (those *above* the thick horizontal line) the two latter terms only were used, while in the later years (*below* the thick line) the term appendicitis is used *exclusively*, except in the Reports of St. Bartholomew's Hospital, where *both* terms are *now* used, a *broken* dark line indicating the year when "appendicitis" *first* appears. In the "Johns Hopkins Hospital" record (kindly sent me by Dr. Henry M. Hurd) there is *no* dark line—the year in which a change of terms (if any occurred) not having been noted. In the Episcopal Hospital of Philadelphia the change of terms is also not noted. The dotted line (...) indicates that no report was available.)

APPENDICITIS CASES IN AMERICAN HOSPITALS.

	Boston.				Philadelphia.						New York.					Ohio	Baltimore.		
	Boston City Hospital.			Carney Hospital.	German Hospital.	Pennsylvania Hospital.			Presbyterian Hospital.	Episcopal Hospital.	St. Luke's Hospital.			Buffalo General Hospital.	Cincinnati Hospital.	Johns Hopkins Hospital.			
	M.	F.	T.	T.	T.	M.	F.	T.	T.	T.	M.	F.	T.	T.	T.	M.	F.	T.	
1883	...	...	2	1	0	Sex not given until 1896.		0	...	...	...	...	...	...	3	...	...	...
1884	5	1	6	0	1			1	1	...	...	...	...	1	2	...	...	...
1885	5	3	8	0	0			7	0	...	...	...	...	0	3	...	...	...
1886	3	2	5	0	1			1	0	...	...	...	1	2	3	...	...	...
1887	5	4	9	0	0			2	1	...	...	...	1	0	3	...	...	...
1888	4	1	5	0	4			2	0	...	...	...	1	0	1	...	...	...
1889	14	5	19	3	3			2	0	0	2	1	3	2	3	1	0	1	
1890	18	9	27	1	5			4	0	1	13	9	22	3	2	8	0	8	
1891	37	9	46	0	1			10	1	2	13	7	20	6	4	7	4	11	
1892	30	18	48	10	5			9	1	5	24	5	29	6	6	13	2	15	
1893	53	34	87	7	8			25	2	7	10	5	4	19	21	10	27	1	28
1894	79	27	106	1	55			32	7	22	24	5	6	35	16	6	18	9	27
1895	95	44	139	6	107			22	28	37	13	5	2	20	39	10	15	7	22
1896	120	45	165	30	157	11	5	16	15	48	16	12	1	29	60	8	30	5	35
1897	131	50	181	37	220	25	13	38	27	53	25	27	7	59	54	12	59	16	75
1898	...	...	...	31	245	37	20	57	35	66	30	16	6	52	71	...	57	31	88
1899	124	73	197	32	231	34	31	65	61	59	54	41	11	106	70	...	65	34	99
1900	154	83	237	67	290	62	34	96	64	91	68	57	4	129	98	...	96	33	129
1901	155	88	243	...	390	78	44	122	...	87	51	98	21	170	85	10	91	43	134
1902	137	85	222	...	447	78	36	114	96	151	76	84	5	165	109	24	98	43	141
1903	151	82	233	...	498	91	42	133	103	128	92	108	19	219	104	19	79	54	133

Since the early nineties the ratio of males and females has changed. Dr. Murphy, of Chicago, in his report of 2,000 cases, says: "Appendicitis occurs in all classes with about equal frequency. In my work it has been a *little more* frequent in males than females" (*Am. Jour. Med. Sci.*, August, 1904, p. 190.) This is a larger proportion of females than my tables show: where we see very irregular variations in the number of female cases from year to year—like woman herself "variable as the shade by the light quivering aspen made," &c. Perhaps more women ride in Chicago than in some other cities; and probably *fashion*—and certainly *weather conditions* (bad weather keeping women in doors, while men continued to ride)—may have caused the number of female riders to vary. Moreover, three factors, viz: Corsets, constipation and pregnancy may have contributed to increase the ratio of appendicitis cases in women, even though the number of female riders was less than male.

On the whole, the proportion of appendicitis cases in women *has increased* since the use of the safety wheel.

With regard to *children*, the table shows that at least in one hospital—St. Luke's Hospital, New York City—the division of its cases into "male" and "female" was changed into a triple division of men, women and children (M. W. & C.) in 1893. We can think of no reason for this change except that the hitherto insignificant number of child cases had now become so considerable as to make the change advisable.

Finally, the hospital reports certainly show a *regular progressive increase* in the prevalence of appendicitis during the decade from 1890 to 1900. Is there any proof of the same increase in the use of the wheel? Manufacturers would not make wheels unless they sold them, and purchasers would not buy unless they rode them. The Twelfth Census of the United States, 1900, Vol. X, part 4, p. 326, gives the following table:

	1890.	1900.	Percentage of increase.
Number of bicycle manufacturing establishments	27	319	1,055.6
Capital invested	\$2,058,072	\$29,783,659	1,347.2
Wages paid employes	982,014	8,189,817	734.0
Cost of materials used	718,848	16,792,051	2,236.0
Value of products	2,568,326	31,915,908	1,142.7

This tremendous increase could not have occurred during any single year, with one bound. It must have been a gradual and progressive evolution, going on, chronologically, hand in hand with the progressive increase in the prevalence of appendicitis.

In 1879 there were only 500 bicycles *in use* in this country. In 1885 there were only 30,000 *in use*. In 1884 there were *made* in the United States only 9,000 bicycles (6,000 of them were sold); but sixteen years later, during the Census year, 1900, there were made in this country 1,182,850 bicycles (1,113,039 by regular bicycle manufacturers and 69,821 as a "by-product" in other manufacturing establishments.)—*Twelfth Census of United States*, 1900, Part iv, Vol. X, p. 328.

Since four years have now elapsed since 1900, it is likely that 4,000,000 more wheels have been added, and some more millions must have accumulated in the country prior to 1900. So that even allowing for many thousands exported, there are probably at the present time 10,000,000 bicycles *in use* in the United States. Again, one bicycle can be ridden by several persons in succession; and further, the *retail price* of the wheel, from increase in the number of competing manufacturing establishments and from the inevitable sale of second-hand machines, must have grown *less*, thus placing the machine more and more within the reach of persons of moderate means and of all classes. It would therefore seem fair to conclude that the use of the bicycle *has* undergone a progressive increase coincident with the increase in appendicitis, especially during the last ten or fifteen years.

As to the *modus operandi* of cycling in producing appendicitis, typhlitis and perityphlitis, it was pointed out by Dr. Byron Robinson, of Chicago, eight years ago, but without any reference to bicycling (*Medical Record*, N. Y., Vol. XLVIII, No. 22, Nov. 30, 1895, pp. 757-762), that "the *psoas muscle* may be taken as the standard of reference in regard to the pathologic condition of the caecum and appendix" (p. 757). Again he says (p. 759): "When favorable pathologic conditions arise in the bowel contents (pathogenic microbes) the traumatic action of the motion of the muscle induces microbic invasion through the appendicular wall." Dr. Robinson bases his conclusion upon the results of 128 mixed autopsies, taken consecutively (*not* appendicitis cases), in which he found in 72 per cent. of them peritoneal adhesions between the muscle and whatever *came in contact with it*—either appendix,

caecum or ileum. He gives ten illustrations—sketches from his autopsies—showing peritoneal adhesions around these organs when they were so placed as to come within the range of action of the psoas muscle. If the organs lay out of range of the action of the muscle there were no adhesions. He found the appendix in males more frequently within the range of the muscle than in females, and this accounts for there being less appendicitis in women than in men.

Toft (as referred to by Dr. With, *London Medical Record*, 1880, VIII, p. 213,) also found the appendix diseased in 110 out of 300 *post-mortem* examinations, every third person thus possessing a diseased appendix.

Dr. R. H. Fitz (*Trans. Asso. Amer. Physicians*, Vol. I, 1886, p. 118), also states that there is evidence of disease of the appendix in more than one out of every three autopsies.

Admitting the existence of these latent adhesions in so many persons, it is not difficult to conceive that the action of the psoas muscle—whether by friction, stretching or tearing—may produce a *quasi* or actual traumatism in the adhesions, lowering their vitality, and under certain circumstances, leading to microbic infection, inflammation, suppuration, &c.

In bicycling, the muscle contracts once with every turn of the wheel. The circumference of an adult-sized safety wheel is 88 inches, hence there will occur 720 mechanical tractions or frictions upon these adhesions for every mile the cyclist rides, and 14,400 such tractions during a twenty-mile trip—assuming a level road and no “coasting.” This action of the psoas is an unnatural one. With each revolution of the wheel the foot moves vertically 14 inches, the distance from the pedal to the axle being seven. There is no such event in natural locomotion. In going up stairs the “rise” of the step is nearer 7 than 14 inches, and none of us ascends 720 stairs in the brief time during which the cyclist makes his 720 psoas contractions in going a single mile of level progression.

The mechanical factors producing traumatism of the adhesions will all be accentuated by the increased intra-abdominal pressure and stronger contractions of the psoas, caused by the rider leaning forward and working hard while “speeding” or going up hill; and, acting upon a *distended* caecum, the same factors would contribute to force (really “pump”) foreign matters from the

caecum into the appendix. Robinson's theory not only explains the greater number of cases occurring *outside* the appendix, instead of *inside* from foreign bodies, as used to be the case, but it also shows why so many cases proceed—even to considerable necrobiosis—without any very marked pain or other symptoms—the functionless connective tissue of which the adhesions are made up being less sensitive than normal tissues.

Perhaps the most powerful contraction of the psoas is made in "mounting" when the rider, having placed his left foot on the step and hopped two or three times with his right foot to put the machine in motion, now flexes the thigh to bring the right foot in place on the pedal. To finally settle the question as to whether the bicycle is a causative factor in appendicitis it might be advisable that all cases sent to hospital should have a special clinical card containing the questions: Was the patient a rider? When did he begin, and when cease to ride? What distances did he ride? How many falls has he had and their date? together with other relevant enquiries. And it would be advisable that the typhlitis and perityphlitis cases should be separated from those of appendicitis when practicable. About one-fifth of appendicitis cases have been ascribed to mechanical injury, including *falls*. Perhaps no one falls more frequently than the wheelman.

Prophylaxis.—In conformity with this etiology the prevention would seem to consist in giving up the bicycle, or the rider might give up his appendix by normal appendectomy. But this latter requires some consideration. It is difficult to see how the removal of a *free* appendix could prevent traumatism in an *adherent* caecum. Is the removal of the appendix, whether normal or diseased, an absolute preventive of typhlitis and perityphlitis? This, I think, remains to be determined.

One conclusion would seem to be inevitable, viz: one or more attacks of appendicitis, typhlitis or perityphlitis having occurred, the use of the bicycle should be positively prohibited, especially if the patient desire to avoid a surgical operation.

If the bicycle has "come to stay," there might be established sanatoria for normal appendectomy, to which parents could send their children for operation before allowing them to ride the wheel. But here again the old question recurs: *Will* the removal of the normal appendix afford security against typhlitis and perityphlitis?

To secure riders against loss of time and money incident to appendicitis and its treatment, appendicitis insurance companies could be established for their benefit.

Finally, it may be noted that the bicycle was referred to by others as a cause of appendicitis some years ago. In 1893 Dr. C. F. Crehore (*Boston Med. and Surg. Jour.*, 1893, CXXIX, p. 151,) asked: "What new broad-footed cause is trampling over the appendices vermiformes of the community?" His answer was, pressure upon an overloaded, distended colon, forcing fluids into the appendix, such pressure being increased by modern calisthenics and games—baseball, football and polo, or by "the position of the modern bicyclist when riding," &c.; and Dr. Robert T. Morris, of New York, not only speaks of the bicycle (*New England Medical Monthly*, Danbury, Conn., 1896, Vol. XV., Nov. 1, pp. 487, 488,) as a cause of appendicitis, but adopts Robinson's theory to explain it. He says: "Robinson has shown that a forcible contraction of the right psoas muscle is very liable to twist or bruise an appendix which happens to lie across it, and I have determined that he is undoubtedly right," &c. He adds: "The bicyclist need have no fear of appendicitis if he is where skilled surgical services can be obtained immediately, for the infected appendix is quickly removed, and the patient can be back on his wheel again in two weeks time with no fear of any further trouble from appendicitis." He concludes: "I certainly should not advise a single individual to give up the wheel because of fear of appendicitis. He might subject himself to greater danger by giving up exercise and allowing concretions to form in his appendix, as I have explained in the second edition of my book on appendicitis." Dr. Morris' treatise on appendicitis is well known, but his paper on "*The Bicycle and Appendicitis*," now eight years old, does not seem to have attracted any general attention to bicycle-riding as a cause of the disease.

Dr. W. P. Carr said that this was about the first paper by Dr. King that he could not agree with. It was most interesting, but he believed that the premises were wrong, and hence also the conclusions. In the first place, had there been any such increase in the number of cases of appendicitis as Dr. King had suggested? Dr. Carr did not believe that the disease was much more prevalent now than it was 100 years ago; and whatever increase there had been was due to increase in population and the fact that

modern civilized conditions tended to propagate it. The hospital reports, on which Dr. King's conclusions were largely based, were unreliable because appendicitis, as such, was not recognized until about 1888, sixteen years ago. Before 1888 it was called by other names—typhlitis, perityphlitis, and even typhoid fever. Under these terms the clinical picture of the appendicitis of today was given in text-books 100 years ago. Formerly the patients were treated at home for one of the affections just mentioned; now they were hurried to the hospital for operation; hence the increase in the number of cases reported, although the actual number of cases of appendicitis might not now be greater than formerly. Practically, the disease had only been recognized within the last ten years, and only within the last four or five years, quickly and reliably, by the general practitioner. Many cases, too, had undoubtedly been operated on for appendicitis when the appendix was found to be normal; yet the hospital record in such cases showed "appendicitis." Hence there was much doubt as to the great increase in the number of cases of appendicitis.

Now, as to the bicycle. About a year ago Dr. Carr reported 100 cases of appendicitis, and in fully one-half of them he could safely say that the patients never rode the wheel at all; most of the patients came from the country, where riding was at a minimum. Furthermore, while no one would doubt that the number of riders now was less than it was three or four years ago, when the fad was at its height, nevertheless the number of cases of appendicitis had increased rather than diminished.

He could not see how the psoas muscle could play any part in the causation of appendicitis, as suggested by the essayist. The muscle was enclosed in a sheath within which the fibers played; with contraction and dilatation and relaxation the sheath swelled out a little, but there was no marked up-and-down motion whatever. Over the sheath was a bed of soft fibrous tissue, and then the mesentery. The appendix was rarely adherent to the psoas therefore, and it was not jerked or moved violently to and fro with the action of the muscle. Furthermore, the psoas was but little called into play in bicycle riding. The pushing down of the pedal was the main action; the lifting of the leg with the rise of the pedal was, in 99 cases out of 100, a passive motion; hence the flexion, which brought into play the psoas muscle, was in most cases a negative factor.

If any one point in pathology had been definitely settled he thought it was the etiology of appendicitis. He was perfectly clear in his own mind as to its causation. He believed that it always began from within, except in case of infection by direct continuity, *e. g.*, from a neighboring abscess. He had never seen *post mortem* conditions like those depicted in the diagrams shown by Dr. King; in fact, in over 1,000 autopsies he did not recollect

an instance in which there was an adhesion between the colon and the wall over the psoas. Usually both the colon and caecum were pretty closely attached to the posterior abdominal wall, but not by adhesions. On the contrary, he thought that it was well settled that the cause of appendicitis was a catarrhal condition of the caecum which extended into the appendix, causing swelling of its mucous membrane, retention of its contents, and consequently inflammation, etc. In a bottle at home he had 120 appendices, and all of them showed a constriction at the point where the base joined the gut; in none of them was there an opening of unusual size, as mentioned by Dr. King in explaining his theory. There might be adhesions around the appendix, with no signs of disease within; and yet these very adhesions might have been caused by an old internal inflammation, all signs of which had disappeared. The pain was due to appendicular colic, and the minute the appendix emptied itself, in whatever way, the pain subsided at once. This colic was due to obstruction. Besides, in most cases of appendicitis no adhesions whatever were found; hence, adhesions could have little, if anything, to do with the causation of the disease. He had an interesting specimen which illustrated the whole process to which he had referred; the primary catarrhal condition, the swelling of the mucous membrane of the appendix next to the bowel, the retention of secretion, the drying of the same into a hard ball, and finally its escape by ulceration into the bowel with perfect recovery of the patient.

Dr. Henry D. Fry said that he had great respect for any opinion advanced by Dr. King, because he remembered an experience of 20 years ago, when Dr. King spoke of the mosquito as one of the factors in the dissemination of malaria; the idea was then regarded as a joke, but now its truth was universally recognized. Hence he was loath to criticise the present theory, and yet he could not but agree with Dr. Carr in several important points. In the first place, Dr. Fry doubted whether appendicitis was any more frequent now than formerly. It must be remembered that the disease was more generally recognized now, which might account for the apparent increase in the number of cases; like ectopic pregnancy, it was not more frequent at the present time, but its presence was more generally recognized.

He also agreed with Dr. Carr as to the action of the psoas muscle. Having himself ridden a wheel, Dr. Fry knew that this muscle was little, if at all, called into play; the effort was in extension, not in flexion; the latter was practically a passive motion. Other conditions than those mentioned by Dr. King, anatomical in character, could be brought forward to show why appendicitis was more common at certain ages.

As to the number of riders, and the comparative number of cases of appendicitis, bicycle riding was formerly a fad, especially after the *Safety* came into use; almost everyone rode, for pleasure

as well as business, and the streets were full of riders ; this was especially true of the eight years preceding 1896. Since then, however, the number of riders had steadily diminished, until now the bicycle was used very little for pleasure and almost entirely for business purposes. Now, Dr. King's figures showed that during the second period, when bicycle riding was on the wane, the number of cases of appendicitis was rapidly increasing ; in the first eight years there were 2,244 cases and in the second eight years there were 34,241 cases. Hence, we must look for some other cause than the bicycle to explain the etiology of appendicitis. The statistics of the bicycle companies to show that their business during the second period had equalled, or even exceeded, that of the first period were discounted by the fact that of late they had been turning out, in addition to bicycles, great numbers of motor cars.

Dr. Kober also hesitated to differ from Dr. King, but was obliged to agree with the views expressed by the other speakers. The arguments which had been presented against the bicycle theory were quite convincing. He briefly reviewed these arguments. As to the statistics mentioned by Dr. King,—if he had substituted 500 cases of typhoid fever for appendicitis, the figures and conclusions would necessarily have been the same ; yet no one would accept the conclusion that bicycle riding was a cause of typhoid fever. Dr. Kober believed that appendicitis was an intestinal infection, differing in kind and degree according to circumstances. Within the age limit, as given on the charts, the susceptibility was greater, hence the greater number of cases at certain ages. Infection was the most important factor in the causation of the disease.

Dr. Hooe wondered that no one had suggested the direful cigarette smoking as a cause of appendicitis ; probably this would have been the case had the disease been recognized a number of years ago. If irritation or use of a muscle, *e. g.*, the psoas, could cause appendicitis one would expect to find the disease especially prevalent among those who led strenuous lives—farmers and country people generally, for instance. According to his experience, however, few persons of this class suffered from the disease ; most of those attacked were individuals leading sedentary lives. Thus they were prone to suffer from chronic constipation, which tended to produce inflammation of the colon and the train of symptoms already mentioned by Dr. Carr. It seemed to Dr. Hooe that the massaging of the appendix, such as was caused by bicycle riding, according to Dr. King, would tend to empty the appendix of its contents, and thereby do good rather than harm.

Dr. J. Ford Thompson said that while Dr. King was reading his paper he (Dr. Thompson) had tried in every way to see how the theory could possibly apply. He had operated for appendicitis long before the disease, as such, was known. Years ago he

had opened abscesses in the appendicular region by the Willard Parker method for "peri-typhlitis," etc. Then no one searched for the appendix, as its significance was not recognized; nor was operation done until an abscess had formed. The number of cases of appendicitis had not increased, as claimed by Dr. King, in the last few decades; it was just as frequent formerly as now, but it was treated under different names. Appendicitis did not appear at the time indicated by the dates on the printed cards; and, furthermore, there was no evidence that there had been any increase in the number of cases. He could not understand how, in the face of a reasonably good explanation, based upon accepted pathological grounds, Dr. King should think it necessary to advance a theory based upon purely mechanical principles. Dr. Thompson reviewed the pathology of appendicitis and the generally accepted etiology, laying especial emphasis upon the *colon bacillus* as a cause of infection in almost all cases. Foreign matter was rarely present; when it was, it merely acted by inviting the presence of the colon bacillus.

Dr. King's theory had been amply disproved by Drs. Carr and Fry. There were no such adhesions as he had mentioned, nor was there any such movement of the psoas muscle in bicycle riding. The muscle was covered by the tissues mentioned by Dr. Carr, and in no way could it possibly contract adhesions like those described by the essayist. It was so quiescent that the great nerves and arteries which passed through it were never, so far as we know, affected by its action. Its power was practically *nil*, even in flexion, and this motion was practically unused in riding the bicycle; its action was weak and extremely limited. It was primarily a supinator, not a flexor; but of course it did flex the thigh if the pelvis was fixed.

To his mind there was absolutely no connection between bicycle riding and appendicitis. He had operated upon children, women and men, who had never ridden the wheel at all. Was it the rule for professional bicyclists to die of appendicitis? There were fewer instances of the disease among women, not because they did not habitually ride the bicycle, but because of anatomical reasons. In females the blood supply was such that the appendix was better able to withstand infection and disease.

Dr. Borden said that he had been much interested in Dr. King's paper. It reminded him of the fact that the osteopaths treated appendicitis by manipulating the right thigh. They claimed that by so doing the resulting motion of the psoas muscle, massaged the appendix and so caused it to expel deleterious material from its interior. Obviously either Dr. King or the osteopaths were in the wrong, for the same cause could not be both causative and curative, unless we adopted the homeopathic motto of *Like cures like*!

Dr. Motter said that if it be granted that, the thigh being

fixed, the psoas helps to flex the trunk upon the thigh, and, if it be granted that oft repeated contraction of the psoas is responsible for peri-appendiceal inflammation, should we not expect to find appendicitis particularly prevalent among laundresses?

Dr. King, in closing the discussion, spoke as follows: "In reply to Dr. Carr: If appendicitis has not increased in frequency, then all discussion of the subject is superfluous. But I do not think that Dr. Carr's idea will be generally accepted. Appendicitis, typhlitis, and perityphlitis, were recognized and accurately described fully fifty years ago. Many of the older members of this Society can recall cases seen long before the present increase began. The hospital reports cannot be disputed; they give us the best information available. In the tables I have not included the 'appendectomies,' found under the heading of 'Surgical Operations,' in the hospital reports, but only the diseases themselves.

"Dr. Carr makes one very important statement, namely: that many cases have undoubtedly been operated upon for appendicitis when the appendix was found to be normal, and that such cases are reported as appendicitis in the hospitals. This would help to explain the many cases alleged to have occurred in persons who never used the bicycle.

"In the 100 cases reported by Dr. Carr a year ago, he says fully one-half of them never rode the wheel; but here he (perhaps unintentionally) admits that the other smaller half *did* ride. Did he, during the years when these cases occurred, always carefully inquire into the use of the bicycle? If not, his statement must be considered a sort of hap-hazard conclusion—only a guess. Furthermore, among those who did not ride, how many were operated upon in whom the appendix was found normal? In future investigations as to the use of the wheel being a cause of appendicitis, these questions must be carefully considered before positive statements can be made.

"My statement as to the use of the psoas muscle, in so far as refers to the adhesions found (and with which both Dr. Carr and Dr. Thompson disagree), is based entirely upon the evidence presented in the autopsies of Dr. Byron Robinson, of Chicago. I have added the idea that these adhesions are disastrously disturbed by the motions of the psoas while riding the wheel. While accepting Dr. Robinson's observations, my own theoretical addition, of course, requires confirmation by further observation. The dissenting opinions of Drs. Carr and Thompson also require the same confirmation. That the caecum and appendix are found adherent to adjacent layers of peritoneum in one out of three persons seems amply proven by the authorities quoted in the paper. The question remaining is, are these adhesions disturbed by riding the wheel? While the motion of the psoas, as explained by Dr. Carr, may not be very decided, the tremendous frequency of its repeti-

tion in bicycling and the exaggerated action of the right psoas in mounting, may still be sufficient to act in the manner I have suggested.

"According to the pathology of appendicitis as given by Dr. Carr, the disease begins on the inside with catarrhal swelling, obstruction, retention of contents, appendicular colic, etc. This is true of 'catarrhal appendicitis;' but that this is present in the larger number of cases now met with seems disproved by the large number of cases operated on in which the appendix is found empty. I think the most recent development in our knowledge of appendicitis is that fewer cases are found with retained matters in the tube than formerly, and that many of the worst cases begin on the outside, as shown by suppuration, ulceration, and even gangrene of the structures concerned. Finally, I have nowhere mentioned 'an opening of unusual size,' as stated inadvertently by Dr. Carr.

"In reply to Dr. Fry, who also doubts that the disease is more frequent than formerly, but that the apparent increase in frequency occurs from its being now more generally recognized, I make the same answer already given in reply to Dr. Carr.

"Dr. Fry affirms that there were more bicycle riders during the eight years preceding 1896 than during the eight years following that date, while the increase of appendicitis as shown by my tables was the other way. But is he correct in this? I think not. The streets in which he thinks the bicyclers were fewer during the latter than during the former eight years were the streets of Washington. My tables have no report from any Washington hospital, and I think Dr. Fry could hardly affirm that he is sufficiently familiar with the relative number of riders in the cities of London, Boston, New York and Philadelphia during the two eight-year periods mentioned to say positively that the number of riders was more or less during those two periods. Furthermore, we have become accustomed to seeing bicycles in the streets now-a-days, so that the number that appeared so large years ago now no longer seems remarkable.

"My data from the manufacturing companies are more reliable, and moreover, unvitiated by other things. They include bicycles, and bicycles *alone*, no motor wheels, no automobiles—not even tricycles are included. The census reports have separate headings for the latter.

"In reply to Dr. Kober, who states that my tabulated statistics as to the different ages at which appendicitis is more or less frequent, might with equal propriety be applied to typhoid fever and some other diseases, I must admit his point is well taken, and it only remains for me, at least, to assert that there is no *disagreement* between the ages at which appendicitis occurs most frequently and the ages during which bicycling is most common. Dr. Kober says: 'Infection is the most important factor in the

causation of the disease.' In a way, this goes without saying ; for really, infection is the thing itself, and the terms inflammation and infection might almost be used synonymously. The colon bacillus is present in the intestines of all of us here tonight, but why should the *tissues* of the appendix in one person become infected and inflamed while in another they do not? This is the cause we are trying to discover, and with regard to which Dr. Kober's statement does not enlighten us.

"In reply to Dr. Hooe.—The experience of Dr. Hooe that the disease is not especially prevalent among farmers and country people who lead strenuous lives, is exactly opposite to that of Dr. Carr, most of whose patients *did* come from the country and presumably led the lives referred to by Dr. Hooe. Perhaps both are right, for separate reasons that are at present inexplicable. I cannot tell,—but it is probable that constipated persons, who have previously led sedentary lives, would have more of the adhesions described by Dr. Robinson, and would be more likely to have them disturbed by the (to them) new and unusual motions of the psoas incident to riding the wheel. Dr. Hooe says that intermittent pressure, or massage of the appendix caused by riding would rather tend to *empty* the appendix, but he presents no proof that the same massage, acting upon the caecum, would not act the other way and force the contents of the *larger* caecal cavity into the *smaller* appendix. This latter seems the more likely of the two.

"In reply to Dr. Thompson, who states that he has operated upon children, women and men who had never ridden the wheel at all, I have only to ask if in the years gone by he had always made careful inquiry as to the use of the bicycle? Convinced that there was no connection between the two, why should he have made such an inquiry? The probability is that he did not. Some one stated during the discussion of my paper that the late Dr. Walter Reed never rode the wheel, but this statement was promptly corrected by Dr. Reed's more intimate associate, Dr. D. S. Lamb, who knew that he did ride. Unless careful inquiry be made we cannot be sure whether our patients rode or not. Then, again, there inevitably looms up the statement of Dr. Carr that many are operated upon in whom the appendix is found normal ; it may be these who never rode the wheel. Dr. Thompson asks : 'Is it the rule for professional bicyclists to die of appendicitis?' The question is unreasonable because it implies a mortality of 100 per cent. in those who have the disease. Also, that the professional bicyclist, *other things being equal*, is not more liable to the disease on account of his occupation, remains to be determined, a very difficult undertaking, since the equality of other things refers chiefly to the condition of internal organs that can only be guessed at without an exploratory incision. We would no more expect *all* professional riders to have the disease than we would

look for it in *all* of the ten or fifteen million *un*professionals who daily ride.

"In reply to Dr. Motter it may be said that laundresses, farmers and others who are *accustomed* to stoop over in their work probably belong to the two-thirds of the population in whom adhesions are not found because the parts are habitually kept in too frequent motion to allow of their formation. We should rather expect to find the adhesions in those persons in whom the parts are subjected to prolonged rest, and are seldom or never moved by stooping over work. It must be remembered that Dr. Robinson, and the other authorities quoted, do not claim to have found these adhesions in all, but in only a smaller part of the bodies examined."

POTT'S PARAPLEGIA, WITH REPORT OF THREE TYPICAL CASES.*

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My experience in the treatment of Pott's disease fully justifies me in stating that there is no condition or complication of that disease that causes as much alarm and anxiety among the parents and friends of a child thus afflicted as the sudden onset of paraplegia, which frequently occurs when everything is very encouraging in the progress of the case. It is extremely hard to make the parents take a hopeful view when they see their child suddenly stricken down with paralysis of the lower limbs and lose voluntary control of its bladder and rectum. This turn in the case generally removes from their minds the last ray of hope for the child's recovery. Fortunately the surgeon who has had an extensive experience in the treatment of these cases can assure them that the tendency of this trouble is toward recovery; the large majority of them can be restored to their former condition within a few months. In holding out this hope it is important to make them appreciate that the treatment must be faithfully carried out in every detail, even though it may often appear very harsh to the anxious parents, whose hearty co-operation is essential to success. It is well to explain to the parents just what is causing the paralysis and what is expected of the treatment, for when they appreciate this and are assured that you are the master

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of the situation, you will gain their co-operation in the vast majority of cases. It is absolutely necessary to have some one in authority in constant watch over these patients. When the parents are willing to share the responsibility with you, you will have plain sailing. On several occasions I have declined to continue the treatment because of the parents becoming indifferent in aiding me in seeing that the treatment was properly carried out at home. It has been my experience to get my very best results in the cases that I have had in hospitals, for here we have the child under perfect control, without the interference of the parents. I do not mean to be severe on these parents; their intentions are the very best; but invalid children are notoriously spoiled. I have never yet seen one that did not rule the entire household.

As the present writer has no intention of boring you with statistics bearing on this subject to convince you that one is justified in holding out so favorable a prognosis as has been given above, it will be stated that, after consulting numerous authorities on the subject, the average percentage of recoveries, under anything like favorable conditions, is about 90 per cent. Some authorities have gone so far as to state that they have never seen a case that failed to recover.

Pott's paraplegia is a much more common complication than is generally supposed by the general practitioner; it occurs in about 10 per cent. of all cases of Pott's disease. It is caused by pressure on the cord by the thickened membranes of the cord from contiguity and not by the direct invasion of the tubercular process as in meningitis. As the tubercular inflammatory process involves the periosteum, the collection of pus pushes into the spinal canal; later the dura mater becomes involved, aiding in the pressure, and as a result, we have a *pachymeningitis externa*, and not infrequently a *pachymeningitis interna* follows. Add to this condition the fact that the spinal canal is somewhat narrowed by the angular deformity, and it is readily appreciated how the function of the cord can be inhibited by the pressure. A few cases of pressure paralysis have been reported in this affection caused by the sudden crushing of a vertebra, which causes a fragment of bone to impinge upon the cord, but such cases are very rare. The spontaneous recovery of this condition contraindicates the inflammation of the cord membranes, which causes the pressure, being of a tubercular nature. It is a well recognized fact

that the greater number of these cases are developed before there is any deformity. In many the paralysis arouses the first suspicion of Pott's disease. It is by no means the rule that paralysis follows the most prominent deformities; in fact, quite the opposite is the rule, for the deformities developed quite gradually are rather late in the disease, and often after the inflamed condition of the membrane has subsided. This gives the cord more time to accommodate itself to the changed position.

The liability to paraplegia varies with the seat of the disease, being most common in the upper dorsal region; next in frequency is in the cervical region and then in the lumbar. The explanation of this is that in the upper part of the bony column the spinal canal is narrower, and is more liable to the aggravated form of the disease with accumulation of pus. Dr. V. P. Gibney, of New York, reported a few years ago 295 cases of tubercular spondylitis with 62 cases of paralysis; in 189 of this number the disease was in the upper dorsal and cervical spine with 59 cases of paraplegia; in the 106 remaining cases the disease was in the lower dorsal and lumbar spine, with three cases of paraplegia. Many statistics are quoted by the authorities on this subject in their writings.

The prognosis is very favorable, as has been stated above; under anything like favorable treatment a very small percentage of the cases fail to make a perfect recovery. Recurrence is not uncommon. Dr. Royal Whitman, of New York, says: "Relapses depend upon the situation or upon the renewed activity of the disease, and are often explained by the neglect of protective treatment." (See Report of case III.) Usually the paralysis lasts from a few months to a year or more. Recovery will often occur even after the paralysis has lasted for a year or more. I have under my care at present a case in which the paralysis came on very gradually, and did not reach its maximum for more than a year, during which time the most active treatment was kept up. A perfect recovery was the ultimate reward for the persistent treatment given.

Recovery from the paralysis depends upon the general course of the disease of which it is a complication and upon the ability of the reparative processes to absorb the infiltration of the tissues that is causing the pressure on the cord. The symptoms of Pott's paraplegia are so manifest that they need not be described in a paper of this sort. The difficult cases that are encountered

are those in which the paralysis is one of the early symptoms of Pott's disease, preceding the formation of any deformity in the spinal column; even here one who is accustomed to observing these cases should not have any trouble in diagnosing the exact condition of things. It is worthy of note that there is no disturbance of sensation except in the most severe cases, which is due to the fact that the position of the sensory nerves in the gray matter of the posterior cornua protects them better than is the case with the motor fibers in the pyramidal tract. The condition of the reflexes is interesting. An exaggeration of the patella reflex is an early symptom. If the seat of the compression is above the patella reflex, which is in the upper lumbar region, there will be an exaggerated patella reflex, due to the inhibitory influence being cut off. The tendon reflexes will vary from a slight exaggeration of the normal to so great a degree as to show in the lower extremities a pronounced type of spastic paralysis; likewise the ankle clonus will vary; often there will be a general tremor of the lower limbs.

The treatment of Pott's paraplegia is both medical and mechanical. The medical treatment consists of using every means of improving the patient's general health in the way of tonics and good hygienic surroundings. The iodide of potassium may, in a way, be almost considered a specific, in that it is about the only drug that should be given with the idea of its having any direct influence in relieving the pressure on the cord. It is supposed to act upon the tubercular granulation tissue as it does upon the products of syphilitic disease. It should be given to the point of tolerance, beginning with a small dose and increasing one grain each day.

Operative treatment for the relief of the pressure on the spinal cord was at one time in favor, but it has fallen into disuse with all except the most radical of surgeons. Laminectomy should have no place in the routine of the treatment of this disease; if it is used at all it should be reserved for the very worst cases that have failed to give any result after a long and faithful trial of the conservative line of treatment I have outlined.

The mechanical treatment can be regulated to a certain extent by the age of the patient and the situation of the disease. This will be explained better in the report of the cases that are to follow. The principle of the mechanical treatment is to put the

spine at the most perfect rest possible and relieve the superincumbent weight on the diseased area. In older children and adults, this can be done by much simpler and less heroic methods than can be done in young children. In adults, perfect rest in bed, with extension and counter extension is quite sufficient; this should be kept up until very decided improvement has taken place in the voluntary muscular movements of the legs. When the patient is allowed out of bed some suitable spinal apparatus producing good antero-posterior support should be applied. The following case is reported as an illustration.

Case I.—Miss H. F. Family history is negative, as the patient was reared in an orphan asylum. At the age of four years she had hip disease, she made an excellent recovery so far as the disease was concerned, but was left with a distorted hip ankylosed at an angle of 45 degrees of flexion to the horizontal plane of the body. At the age of 22 she developed Pott's disease in the mid-dorsal region which left her with a very prominent deformity. She first came under my observation in September, 1893, in the Hospital for Ruptured and Crippled, New York, while I was house surgeon in that institution. She was admitted there for operation for the correction of her hip deformity. I assisted Dr. V. P. Gibney, Surgeon-in-chief, in doing a Gant's femoral osteotomy on her. This corrected the flexion deformity of her hip, which wonderfully improved her locomotion.

In the autumn of 1901 she came under my professional care in Washington, D. C.; during the following winter she developed symptoms of Pott's paraplegia—unsteadiness of gait, exaggerated patella reflex and ankle clonus. In May, 1902, she became perfectly helpless in her lower limbs. This is especially interesting, because of the fact that it was ten years after she had been pronounced cured of her Pott's disease. I had her admitted to Sibley Hospital and put her to bed with extension. She was started at once on increasing doses of iodide of potassium, which was increased to 60 grains t. i. d. At the end of two months she was allowed to sit up in a rolling chair with a spinal brace on, and encouraged to walk, with the assistance of a nurse, a little each day. The improvement was rapid, for in three months from the time of her admission she could walk well unsupported.

I last examined her October 3, 1904, and found her general condition very good, and had been since she left the hospital in

the early autumn of 1902. At present she has an exaggerated patella reflex, but no ankle clonus or unsteadiness of gait. It might as well be mentioned here that the persistence of patella reflex in an exaggerated degree is the rule after recovery from Pott's paraplegia. It is quite a common condition in patients who have recovered from Pott's, who have never been paralyzed.

If the disease is above the fifth dorsal vertebra, the mechanical appliance should be so arranged as to support the head to an extent that will relieve, as far as possible, the superincumbent weight. There are several apparatuses in general use for this purpose, such as the Sayre jury mast, attached to a spinal brace or to the plaster-of-Paris jacket. This apparatus has been used for a number of years and has served a most useful purpose; but as a result of many objectionable features, it has been largely supplanted by some form of chin support on a steel collar which works on a pivot that is attached to a bar running up the back of the spinal brace, ending just under the occipital bone.

I frequently attach the chin support to a plaster-of-Paris jacket by means of an appliance incorporated in the jacket as it is applied. This is done in exactly the same manner that the support is incorporated in the plaster-of-Paris jacket that carries the Sayre's jury mast. The plaster jacket has many advantages over the steel brace in small children. The buckles and straps of the brace get out of order, and can be readily interfered with by the child, whereas this plaster jacket always remains just where you leave it, and gives the most perfect support from that fact.

This form of head support has many advantages over the Sayre's jury mast. It is much less complicated, much easier to keep in order and furnishes a more efficient support. The child's ordinary clothing can be easily arranged so as to entirely hide this apparatus with the exception of the chin piece.

Appreciating that the more perfect rest the spine of a paralytic child can have the more rapidly the boggy infiltration of the membranes of the cord that is causing the pressure is going to be absorbed, I have adopted the use of the plaster-of-Paris jacket in all acute cases in children, as it is the most perfect means of immobilizing the spine that I have found. When the disease is in the mid-dorsal region, or below, I have not found the head support necessary. In such cases I apply the plaster-of-Paris with the patient in the recumbent position, with one assistant making

traction and extension from the axillae and the other assistant making traction with hands grasping the pelvis. I extend the plaster over the spinous process of the seventh cervical vertebra in the rear and to the margin of the clavicles in front, over the shoulders closely around the neck, and down to the crest of the pelvic bones. While waiting for the plaster to set I make firm pressure over the upper part of the chest with the palm of my hand and counter pressure just over the apex of the deformity with the other hand, for in this way I can secure considerable over-extension. The plaster is then trimmed out of the axillae and over the shoulders sufficiently to give free use of the arms. With this method of immobilization I have seen marked improvement in the voluntary movements of the legs in a few weeks. As soon as the child improves sufficiently to enable it to walk well unsupported I apply a removable corset built up well in front and behind, but not extending it over the shoulders.

The following is selected as a typical case, representing this class of patients: Case II.—George S., age 11 years; family history excellent; father and mother living and have always enjoyed excellent health. He has three older brothers, who are all unusually healthy and well developed boys. This patient was referred to me by Dr. H. T. Harding, of this city, in March, 1898. He developed Pott's disease at the age of five years. At the time he came under my care he had a prominent deformity in the mid-dorsal region. I at once applied a removable plaster-of-Paris corset and put him on a general tonic treatment. He continued to do well until May, 1900, when it was noticed he was becoming unsteady in his gait, and in about a month he had lost the entire use of his lower limbs, but never had any trouble with either his bladder or rectum.

As soon as he developed symptoms of paraplegia, I at once discontinued the use of the removable corset and applied a solid plaster jacket, extending it over the shoulders, with his spine over-extended while being held over the end of a table with his face down. The over-extension was made by an assistant holding his legs up while I made pressure with the palm of one hand pressing over the upper part of his chest and the other over the apex of his deformity in the spine as I waited for the plaster to harden. I allowed him to be taken out of doors every day in a rolling chair; but he was not allowed to even attempt to walk until there was marked improvement in the voluntary control over the use of

his legs. He was put on increasing doses of iodide of potassium until he was taking 60 grains a day *t. i. d.* Marked improvement was noted in the patella reflexes and ankle clonus, which had existed in an exaggerated degree, in about two months. His recovery was complete in about six months, when a removable plaster-of-Paris corset was again applied, and has been continued to the present time. Probably it would not be unwise to leave off the spinal support at this time; but as the paraplegia did not come on until three years after the onset of the disease, I believe it is wiser for him yet to have the spine supported.

By far the most troublesome cases to manage are those that occur in young children, in whom the disease is situated above the 5th dorsal vertebra. Here it is simply impossible to immobilize the diseased joints without confining absolutely the child's head so as to prohibit all motion. Fortunately by so doing great comfort is given the child, and the perfect rest afforded the diseased joints aids greatly the absorption of the infiltration of the membranes of the cord. I have recently had this most forcibly illustrated to me in the case of a child $2\frac{1}{2}$ years old with acute cervical Pott's disease. The mother tells me that for two months the child had been in almost constant pain, resulting from the least motion of the head, and that the child had not had a good night's rest in that time. About three weeks ago I put it up in plaster-of-Paris, as will be described in the next case to be herein reported somewhat in detail. Since this was done, the child has slept perfectly and has improved wonderfully in its general condition.

In this class of cases I extend the plaster-of-Paris over the posterior aspect of the neck and head to the eyebrows, as has been described above. There being great strain on the plaster-of-Paris over the neck, it is necessary to incorporate two steel bars 1-16-inch thick and $\frac{1}{2}$ -inch wide in the plaster to reinforce it. These bars must be moulded to the contour of the head, neck and shoulders. Before applying the plaster the head must be well bandaged with a flannel bandage and spine protected with absorbent cotton to prevent excoriations. The plaster jacket should extend down well on to the pelvis, for the longer the jacket is the more leverage you will have to hold the head support steady; the more perfectly the entire spine is immobilized the more comfort the patient will have.

This class of cases is well illustrated by the following report :
Case III.—Mary W. Age, 8 years. Mother died of pulmonary tuberculosis ; father is living and is in robust health. She was referred to me by Dr. Thomas J. Kelley, of this city, May 1, 1901, as soon as he discovered that there was some trouble with the child's spine. The diagnosis of cervical Pott's disease involving the seventh cervical vertebra was easily made. There was very little deformity and no symptoms of paraplegia. A Taylor brace with chin support was at once applied, and the child put on a general course of tonic treatment. In January, 1902, the child became paraplegic, losing the entire use of her legs ; the reflexes were exaggerated to an extreme degree. The child was at once put on increasing doses of iodide of potassium, and special instructions were given as to the care of the spinal brace and chin support that she had been wearing for the past eight months. The child recovered in about six months.

In February, 1903, it was noticed that the child was again becoming unsteady in its gait, and within a month she had lost the entire use of her lower limbs. The return of the paraplegia in nine months after the patient had been pronounced cured indicated to me very plainly that something more radical was indicated than was done at the time of the previous attack. As the child was under the care of over-indulgent grand parents, I insisted that it should be brought in the hospital, that I might have it under more rigid daily discipline. The child was taken in the hospital March 15, 1903, and was at once put up in a plaster-of-Paris jacket extending over the head, as has already been explained above, giving perfect immobilization of the head and spine. Iodide of potassium was at once given in the usual way. It was most interesting to watch the effect of this treatment, for within three weeks the child could easily lift its legs to an angle of 45 degrees to the horizontal plane of the body, whereas at the time the treatment was begun it could not as much as wink its toes. The improvement continued at a rapid rate ; at the end of eight weeks the child could walk well, unsupported. At this time the Taylor brace with chin support attached was applied, and the child sent home cured. I last examined this child May 30, 1904, and found her in excellent condition, no evidence of the paraplegia.

Dr. S. S. Adams had seen several cases of Pott's paraplegia, with others, in the last few years. He congratulated Dr. Shands upon the success of his treatment, and particularly upon the remarkable simplicity and beauty of the apparatus which he had exhibited. All would remember the old, cumbersome apparatus, and the awkward and heavy plaster-of-Paris jackets, which in many instances must have done more harm than good. This apparatus was superior in many ways to that devised by Sayre. The differential diagnosis between Pott's paraplegia and anterior poliomyelitis was difficult, particularly in the early stages. The mode of onset and early symptoms in the two affections were very similar. He asked Dr. Shands to outline the points upon which a differential diagnosis could be made prior to the occurrence of deformity. The reported results, particularly in the last of the three cases, were such as to encourage specialists to continue treatment along the same lines. The plaster-of-Paris dressing, going up over the head, was apparently perfectly satisfactory, and, moreover, comfortable.

Dr. Shands replied that the differential diagnosis might be attended with difficulty if there was no history. The history, however, was a great aid; in anterior poliomyelitis the onset was sudden and accompanied with a rise of temperature, the fever gradually subsided, and later paralysis was discovered. The main point, however, concerned the reflexes: in poliomyelitis they were abolished, whereas in Pott's paraplegia there was an exaggerated patellar reflex.

CASE OF EXTRA-UTERINE PREGNANCY, OPERATION.

By G. BROWN MILLER, M. D.,

Washington, D. C.

Frances T., colored, age 20 years, was sent to the Emergency Hospital June 2, 1903, by Dr. Thomas F. Keen of Hamilton, Va. She was sent by Dr. Keen to Dr. W. P. Carr's service with a diagnosis of extra-uterine pregnancy. The resident of the hospital communicated with Dr. Carr, who asked him to transfer the case to my service. I was communicated with late at night, and after getting a brief description of the case, postponed my examination until the following day.

She gave the following history, which was, however, taken after the operation, and is much more pointed than it would otherwise have been: *Family History*, Negative. *Previous History*, Pa-

*Reported to the Medical Society of the District of Columbia, December 7, 1904.

tient has always enjoyed good health. Does not remember ever having had any of the diseases of childhood. She began to menstruate when 14 years of age, and up to beginning of present illness her periods were very regular, occurring once a month and lasting three days.

Present Illness began last September (1902), after she had indulged in sexual intercourse twice during the month—during the first and fourth weeks. A few days after the last act of coition menorrhagia, accompanied by severe pain in right iliac region, began and continued until the beginning of November, when, owing to her weak condition, she took to her bed, where she remained most of the time until brought to hospital, June 2d, for operation. Her menses during the entire period of gestation were very irregular, sometimes occurring once in two weeks, again once in four weeks. Pain of an intermittent character was always present in abdomen. During the early months it was located in the right iliac region; later it became diffused over entire abdomen. A tumor about the size of a man's fist appeared in the right iliac region during the month of December. This continued to enlarge, and during the second week in January was felt to move for the first time. After this, quickening was frequently noticed by the mother. By this time the patient had become very weak, because, since October, she had been rapidly losing flesh, and up to time of delivery thinks she lost between 50 and 60 pounds. Her appetite was excellent, but she seemed to derive very little nourishment from her food. Morning sickness was never present at any time. Dyspnoea was a marked symptom during the latter months; often she had to sit upright in bed in order to breathe freely.

When seen by me the woman, who was suffering severe abdominal pain, especially in the epigastric region, presented the appearance of one with a large malignant new growth in the abdominal cavity, or tuberculous peritonitis. She was emaciated, was suffering with dyspnoea, her feet and ankles were markedly edematous. She had a rapid pulse and a slight elevation of temperature. No disease of heart or lungs could be found. The whole abdomen was irregularly distended, and presented a glazed, brawny appearance. On palpation, a hard mass was felt in the epigastric and left hypochondriac regions, and marked tenderness was noted in these regions. A firm, resistant body occupied the whole of the left flank, and a small, hard body could be palpated

in the left iliac region. The right iliac region was occupied by a softish body as large as a child's head. On percussion there was flatness over an area from the level of the lower border of the ribs to the pelvis and from the right mammary line to the left flank. The whole of the right iliac region was also flat. No movements were felt or had been noticed while in hospital.

A vaginal examination was next made. The vagina was capacious, but contained no bloody discharge. The cervix was as soft as that of a primipara at term. The external os was the size of a quarter dollar (2 cm. in diameter), and the examining finger entered for 2 to 3 cm. when it impinged upon the walls of the uterus, the cervical canal being conical. The uterus appeared two to three times its normal size, and lay pushed to the right of the rectum in the pelvis. The irregular tumor could be felt extending into the pelvis to the left and front of the uterus.

The breasts were enlarged and contained colostrum. On auscultation the fetal heart could be plainly heard in the left flank, rate 140 to the minute.

Diagnosis: Extra-uterine pregnancy near term.

The operation was performed June 4, 1903, by me, with the valuable assistance and advice of Dr. W. P. Carr. A median incision was made extending from 6 cm. above the umbilicus to 10 cm. below it. On cutting through the abdominal walls the sac, the wall of which was very thin, was entered. There was very little amniotic fluid. The child, which lay with its head in the epigastric, and buttocks in the left iliac region, with its back towards the left flank, was removed, and the cord cut between two clamps. The sac was adherent around the umbilicus to the anterior abdominal wall over an area four to six cm. The omentum, which was attenuated and sodden in appearance, was also adherent to the sac by very vascular adhesions. The placenta was attached to the right broad ligament, the tube and ovary being intimately attached to it. It was likewise adherent to a portion of the pelvic wall, to the mesocoecum, mesoappendix and uterus. The vermiform appendix lay coiled in filmy adhesions quite close to the margin of the placenta. The uterus lay behind and to the right of the placenta.

After the removal of the child the omental adhesions were clamped and detached and afterwards ligated, and the sac separated from the anterior abdominal wall. The operation then

resolved itself into removing the placenta and this was made comparatively easy by the use of large clamps to grasp the pedicle-like broad ligament after separating the adhesions to pelvic wall, coecum, uterus, etc. The vessels were then secured by suture ligatures of catgut and kangaroo tendon. The vessels here were excessively enlarged, the ovarian artery being as large as a goose quill. It was found necessary to tampon the oozing area in the right iliac region, iodoform gauze being used, the ends of it being brought out of the lower angle of the wound. The patient stood the operation well.

The child, a girl, was alive; weighed $6\frac{1}{2}$ pounds, and was thought to be of about $8\frac{1}{2}$ months development. It showed some signs of asphyxiation after its removal, but was soon restored to the normal. Unfortunately, it died about six to eight hours after the operation, from a sudden hemorrhage from the cord, due to slipping of the ligature which tied this structure.

It was found necessary to re-open the woman's abdomen several hours after the operation to make certain that a gauze sponge which was missing after the operation was not left in the abdomen. Considerable oozing had occurred from the raw areas. The blood was sponged away; the gauze pad was not found. She made an uninterrupted recovery, and, according to advice from Dr. Keen, of March 12, 1904, is enjoying "perfect health."

Dr. I. S. Stone said that he saw the operation and could bear witness to the skill with which it was performed. The number of reported cases in which the result was so successful was very few indeed. Certainly very few instances of the kind had been recently reported. He related a case which illustrated the difficulty of making a correct diagnosis. The case was one in which an operation was performed, after he had made a diagnosis of extra-uterine pregnancy, his views having been substantiated by an able consultant. The condition was about the same as that described by Dr. Miller in reporting his case. Everything was unusual, even the history. By physical examination the child could easily be mapped out, the head up near the liver, and the feet below. Diagnosis of abdominal pregnancy was made, but it turned out that it was one of those unusual cases in which the uterus was thin, flabby, and spread out so as to fill the whole abdominal cavity. In such instances the diagnosis could not be made with certainty.

It was unfortunate, in Dr. Miller's case, that the child died. The cord was tied in a great hurry at the time of operation, and

it was but just to say that Dr. Miller did not tie it. The attachment of the placenta was remarkably fortunate, allowing easy ligation and separation. After reading the authorities, like Lawson Tait, one dreaded to attempt the removal of the placenta in these cases. Tait advised that it be left *in situ*, undisturbed, to take care of itself, and that no attempt be made to remove it unless the circumstances were unusually favorable. In conclusion, Dr. Stone congratulated Dr. Miller upon the happy result; the operation was a marvel of surgery, and an exhibition of remarkable vitality on the part of the patient.

Dr. Thomas C. Smith congratulated Dr. Miller on his diagnosis and treatment of the case reported. A few members present might remember a case reported by Dr. Smith to the Society many years ago. The lady came here from Nova Scotia, in March. She expected to be confined in the preceding January. Symptoms of labor came on at the expected time, then subsided. The physicians in attendance tried to bring on labor, and in a letter to Dr. Smith one of them stated that the cervix had been dilated and the elbow distinctly felt; but no result followed, except that fetal movement ceased. Dr. Busey examined the patient with Dr. Smith, but a satisfactory diagnosis was not made. Dr. J. Taber Johnson was added to the consultants, but would not give an opinion until the lady had been examined, under anesthesia, in his hospital. Then it was assumed that the pregnancy was extra-uterine. A few days later Dr. Johnson removed from the abdominal cavity a full-term child considerably mummified. Of course, the first physicians had been mistaken when they declared they felt the elbow of the child in the uterus.

Dr. J. Taber Johnson said that the diagnosis in the case just mentioned by Dr. Smith was not made until the operation. The tumor, which was as large as a watermelon, was easily enucleated, and it finally rolled out of its bed. One of the physicians present opened it, and found a full term child. The physicians in Nova Scotia were sure of the pregnancy; they even dilated, and attempted to clean out the uterus. The case was interesting because three or four months had passed after the fetus reached full term.

The question in abdominal pregnancy was mainly as to the management of the placenta. Such pregnancies usually resulted from the rupture of a tubal pregnancy into the folds of the broad ligament and final rupture into the abdominal cavity. The placenta did not, as a rule, leave the tube, and the child eventually died from cutting off of the blood supply. When the placenta was extruded, however, it became attached here, there and everywhere to so many vital organs that clamping and removal were practically impossible, and hence the present rule not to disturb it, or attempt its removal, but allow it to come away by sloughing, after the method described by Tait. But few had survived this process, but they outnumbered those who had survived attempted removal.

Dr. Miller was certainly to be congratulated upon having operated on a case in which the attachments were such as to render removal possible. Dr. Sutton, of Pittsburg, had recently reported a similar result.

To illustrate the difficulty of making a correct diagnosis in cases of abdominal pregnancy he related the following incident: Dr. Kelly, of Baltimore, at a meeting here, reported a case of abdominal pregnancy which he had treated successfully. A week or so later he invited Dr. Johnson over to see him operate in a similar case and deal with the placenta. The woman was examined by a number of physicians, all of whom believed that she had an abdominal pregnancy. The case turned out to be one of perfectly normal pregnancy. Subsequently, Dr. Kelly said that he could not see how he made the mistake.

Dr. Miller, in closing the discussion, said that Dr. Keen, the patient's physician, had made a diagnosis of abdominal pregnancy before she entered the hospital. The dilated cervical canal admitted two fingers; its interior was apparently conical. The fetal heart was also heard. The cervix was soft, and the uterus appeared to be trying to extrude something. The diagnosis was not especially difficult to make. The case was undoubtedly a very favorable one for operation, owing to the peculiar attachment of the placenta. He reviewed the most interesting features of the case. The management of the placenta was undoubtedly the most important point. Some advocated killing the fetus, by electricity or otherwise, or waiting for it to die naturally, when the placental vessels contracted or closed before operating. He did not believe this to be justifiable. He did not know of another instance in the District of removal of a living full-term fetus from the abdominal cavity, and hence he had reported the case as one which appeared to him to be of especial interest.

CASE OF CHRONIC INFLAMMATION OF LARYNX.*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

From a man, 27 years old. Had been ailing a couple of years, complaining mostly of dyspnoea. Was taken to the hospital *in articulo mortis*, and died. Further history not obtainable. The specimen showed what at first sight appeared to be a tumor of the larynx, but on microscopical examination, disclosed only an inflammatory thickening and induration. No specific history, either of syphilis or tuberculosis. The specimen was interesting

* Reported, with specimen, to the Medical Society of the District of Columbia, November 30, 1904.

in that the thickening, as a result of chronic inflammation, was so great as to simulate a new growth.

Dr. C. W. Richardson said that the case was remarkable in that the patient was allowed to go on *ad extremam* before securing medical attendance. When he was brought to the hospital great difficulty was experienced in making a diagnosis, owing largely to his serious condition. If he had been seen earlier, he could have been treated properly, and his life, in all probability, would have been saved. Attempts to remove such growths had been very uniformly successful. It was hard to make out the exact nature of the tumor in this case; it was evidently hard, situated high up in the larynx, and sessilated. To Dr. Richardson it looked like a cartilaginous growth. Microscopical examination would probably disclose its true nature. He had a somewhat similar case about six weeks ago—multiple papillomata of the larynx. The patient had had two or three attacks of suffocation, in each of which he nearly died. Examination showed that the larynx was filled with the growths, and at first it was impossible to detect the passage through which the man breathed. He was completely relieved by excision; his voice became clear and normal, his breathing was unimpeded, and within six weeks after the operation he gained 28 pounds.

Dr. D. S. Lamb said that in this case the disease was more extensive than usual; it involved not only the whole of the larynx, but also the adjacent portion of the pharynx. It was general, not local, and evidently of an inflammatory nature, whatever might be the underlying cause. The possibility of its being a local tumor was open to question. The microscopical examination so far had disclosed only evidences of chronic inflammatory disease. A further examination, however, would be made for certainty, for as Dr. Richardson said one place particularly looked like a tumor.

CASE OF ROUND-CELLED SARCOMA OF KIDNEY IN A CHILD; ENUCLEATION.*

By JAMES KERR, M. D.,

Washington, D. C.

From a white girl; age, five years. Family history good; she had had the usual diseases of childhood. October 17, 1904, she had what was diagnosed as a "bilious" seizure, with severe pains in right side and abdomen. 22d, she was fretful and languid; abdomen distended. The distension and fretfulness increased;

*Reported with specimen to the Medical Society of the District of Columbia, November 30, 1904.

she was nervous and sleepless ; respiration embarrassed ; pulse weak ; appetite fairly good ; stools normal. 27th, abdomen much enlarged ; a painless tumor, dull on percussion, was found in right hypochondriac, iliac and hypogastric regions, extending two inches beyond middle line ; superficial veins of right side of thorax and abdomen enlarged ; pulse, 150-160 ; respirations, 36-40 ; lips blue ; face dark but not bronzed ; paroxysms of cardiac asthma compelled her to sit up. She improved somewhat and Dr. Kerr decided to operate. She was admitted to Providence Hospital, November 4, and he enucleated the tumor, assisted by Dr. Porter. The tumor encroached on the large abdominal vessels, which had to be carefully separated before ligating the renal vessels. She recovered and rapidly gained flesh. Microscopical examination by Dr. James Carroll, U. S. Army, showed the tumor to be a round-celled sarcoma.

CASE OF APPENDICITIS AND OVARIAN CYST WITH TWISTED PEDICLE, COMPLICATING PREGNANCY.*

By H. D. FRY, M. D.

Washington, D. C.

Dr. Fry said that the case was interesting on account of its unusual features. He first saw the patient a week ago. She was a young married woman in the third or fourth month of her first pregnancy. Two weeks before, she had suffered from an acute inguinal pain. The day before he saw her she had another ; it was so severe that three hypodermics and chloroform were required for her relief. That night soreness developed ; temperature about 100. From the history he accepted the diagnosis of appendicitis complicating pregnancy, and advised operation. At 6 P. M. the same day she had another attack of pain, and was taken to the hospital and immediately prepared for operation. There was fulness and a sensation of hardness over the site of the appendix.

The abdomen was opened by the gridiron incision, and upon opening the peritoneal cavity about a pint of straw-colored fluid escaped. With his hand he felt what he thought was the bladder, and behind it a soft, cyst-like mass, possibly the pregnant uterus.

* Reported with specimen to the Medical Society of the District of Columbia, November 23, 1904.

What he thought to be the bladder was in reality the uterus, and the mass an ovarian cyst. The wall of the cyst appeared gangrenous; it was thin and ruptured, with the escape of bloody fluid. The pedicle had two corkscrew turns; was ligated, and the cyst excised. The appendix was also found to be diseased, and it, too, was removed.

The explanation of the symptoms was evidently as follows: She had had the ovarian cyst for months; the fundus of the rising uterus presented a rounded surface and caused a twisting of the cyst pedicle. The first twist occurred two weeks ago when the patient had the first attack of pain; the second attack of pain occurred with the second twist, which cut off the circulation, thus accounting for the gangrenous condition found at the operation.

Dr. Fry had met with four instances of appendicitis complicating pregnancy. In one there was a septic peritonitis, with perforation, and death. In another, the patient recovered, going to full term. A third miscarried at the sixth month; the mother recovered. It is remarkable that these patients lived only a block apart, on Capitol Hill.

Dr. I. S. Stone said that the case was very interesting on account of the difficulty in making a diagnosis. It was also interesting as regarded the torsion of the pedicle of the cyst. This torsion was a step in one of the most interesting pathological formations, namely, parasitic tumor. He looked this subject up five or six years ago; the literature was poor, and there were but few cases on record. Sporadic cases had been reported in foreign countries. He wrote Dr. Howard Kelly of his cases and asked for information from his clinic, and in reply received a beautiful sketch of a parasitic tumor which had recently come under Dr. Kelly's observation. Dr. Stone believed that Dr. Fry was absolutely correct as to his explanation of the attacks of pain in the case he reported. All the patients who suffered from these twists did not die; sometimes the growth was found encapsulated in the abdominal cavity, perhaps in an entirely new location, the collateral circulation taking care of the blood supply. He mentioned an instance of parasitic tumor of this kind. A cyst was gradually raised above the pelvis by the omentum; twisting of the pedicle took place, and eventually the cyst was found in a new location, and entirely disconnected from the old, as to blood supply, but the site which it formerly occupied could be ascertained by the presence of a cord-like adhesion which now took the place of the former pedicle. Such tumors often reached a large size. The other day he operated upon a woman who had a

small cyst of the ovary, about the size of a lemon. The pedicle was twisted nearly three turns, why, it was impossible to explain. She had suffered from attacks of pain which were apparently due to disease of the appendix, but this organ was found to be healthy. The twisted pedicle was nearly black, and the tumor had attached itself to the peritoneum and had become adherent in a new position. Undoubtedly this was an early stage in the development of a parasitic tumor; it was thoroughly adherent, and would probably always remain so; the pedicle would gradually disappear; and the blood supply in the new location would be cared for by the collateral circulation.

Dr. Lochboehler said that he saw the patient, whose case was reported by Dr. Fry, a month and a half ago. She was then two months pregnant, and had taken medicine to produce an abortion. Her pain was so great that hypodermics of morphine and chloroform inhalations were required to give her relief. Dr. Gill was called in consultation. The diagnosis was not clearly made out; the pregnancy was confirmed, and a mass was made out on the right side. Operation was deemed advisable, although there was no temperature, and the pulse was only 79 or 80. There were subsequent attacks of pain, and operation was performed by Dr. Fry, as reported. It was remarkable that the pathological conditions were so grave, in spite of the slight disturbance of pulse and normal temperature, which confirmed the statements of the leading authorities, that these latter gave no weight to the serious nature of an attack of the disease.

PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Wednesday, November 9, 1904.—Dr. Louis Mackall, Jr., Vice President, chairman *pro tem.*, afterwards President Richardson. 120 members present.

Dr. J. H. Musser, of Philadelphia, addressed the Society upon the subject "Some Consideration of the Management of Endarteritis and Nephritis."

Dr. E. B. Dench, of New York, read a paper upon "The Importance of Middle-ear Suppuration, from the Standpoint of the General Practitioner." See p. 390.

A rising vote of thanks was extended to Drs. Musser and Dench.

Wednesday, November 16.—Dr. Louis Mackall, Jr., Vice President, in the chair. Over 42 members present.

The Chair announced that the President had appointed Drs. Kober, H. L. E. Johnson and Barnes delegates from the Society to the Pan-American Medical Congress at Panama.

Dr. S. S. Adams resigned as a member of the Milk Commission. The following cases and specimens were presented :

By Dr. Vaughan : Operation for Patent Urachus. Discussed by Dr. G. Brown Miller. See p. 412.

By Dr. J. Ford Thompson : Ovarian Cyst, with Abscess, Salpingitis and Appendicitis. See p. 413.

Dr. Oscar Wilkinson read the paper of the evening. Subject : "A Plea for the Early Treatment of Strabismus." Discussed by Drs. Shute, Belt, Reyburn and Franzoni. See p. 404.

Wednesday, November 23.—Dr. Charles W. Richardson, President, in the chair. Over 48 members present.

The following cases and specimens were presented :

By Dr. J. D. Thomas : Addison's Disease. Discussed by Drs. J. Dudley Morgan, Thomas C. Smith and D. S. Lamb.

By Dr. Henry D. Fry : Appendicitis, and Ovarian Cyst with a Twisted Pedicle, Complicating Pregnancy. Discussed by Drs. I. S. Stone and Lochboehler. See page 448.

Dr. Millard F. Thompson read the paper of the evening. Subject : "Position in the Treatment of Placenta Praevia." Discussed by Drs. A. F. A. King, Henry D. Fry, Anderson and Chappell.

Wednesday, November 30.—Dr. Charles W. Richardson, President, in the chair. Over 85 members present.

The report of the sub-committee upon the Compulsory Reporting of cases of Tuberculosis to the Health Department, and the recommendation of the Executive Committee with reference thereto, were taken up for consideration and adopted.

The following candidates were elected members by invitation : Drs. H. L. Gilchrist and Charles Reynolds, U. S. Army, Drs. W. R. DuBose, H. G. Beyer, P. A. Lovering, Paul Fitzsimmons and A. F. Price, U. S. Navy, and Dr. Reid Hunt, of the U. S. Public Health and Marine Hospital Service.

The Librarian was given authority to furnish printed copies of the Transactions of past years to members desiring them.

Dr. D. S. Lamb presented the following specimens :

1. Inflammation of Larynx. Discussed by Dr. C. W. Richardson. See p. 446.

2. For Dr. James Kerr : Sarcoma of Kidney. See p. 447.

3. Liver showing large solitary surface cyst.

4. For Dr. E. C. C. Winter : Monstrous foetus.

Cyst of Liver.—The specimen consisted of a portion of the liver, showing a large, solitary surface cyst. The patient, a woman 62 years old, died of general cancer. The occurrence of these cysts was explained as follows : One or more of the biliary ducts were not fully developed, the opening being closed, fluid collected, and

the cyst thus formed gradually enlarged, sometimes reaching the size of the fist.

Monstrous Foetus.—Thoracopagus specimen contributed by Dr. E. C. C. Winter. There was a fusion of two individuals, or, rather, a failure to divide. Union was by the sternum and possibly by the sides of the ribs. The monster probably had two hearts and two sets of lungs. Heads, legs and arms distinct; legs and arms on one side fused almost all the way down. One umbilical cord. Rectum not open. Vulvae apparently fused. Sex, female.

Dr. A. F. A. King read the paper of the evening, "New Etiology and Prophylaxis of Appendicitis." Discussed by Drs. Carr, Henry D. Fry, Kober, Hooe, J. Ford Thompson, Borden, Motter and Kleinschmidt. See page 414.

Wednesday, December 7.—Dr. Charles W. Richardson, President, in the chair. Over 50 members present.

The Treasurer reported for November: Received—Assessments, \$140; entrance fees, \$40. Total, \$180.

An appropriation of \$89.34 was made to pay for the publication of Vol. III, No. 5, of the ANNALS; \$295.10 for expenses of the Corresponding Secretary for the year 1904; and \$19.04 for stenographic work for the Executive Committee during 1904.

The Chair announced the death of Dr. James C. Bird, and appointed Drs. A. F. A. King, Franzoni, and J. Taber Johnson, a committee to draw up suitable resolutions.

The following cases and specimens were presented: By Dr. Barton, Aneurism of Descending Aorta. Discussed by Drs. Kleinschmidt and Vale. By Dr. G. Brown Miller: Extrauterine Pregnancy with a living, full-term Foetus. Discussed by Drs. I. S. Stone, Thomas C. Smith and J. Taber Johnson. See page 441.

Dr. Shands read the paper of the evening. "Pott's Paraplegia, with a Report of Three Typical Cases." Discussed by Dr. S. S. Adams. See page 432.

Dr. J. J. Walsh, of New York City, was invited to read a paper January 11, 1905, and the Corresponding Secretary was requested to invite to be present the senior medical classes of the George Washington and Georgetown Universities.

Wednesday, December 14.—Dr. Charles W. Richardson, President, in the chair. Over 65 persons present.

The committee on the death of Dr. James C. Bird reported resolutions, which were adopted.

The Chair appointed the following essayists for the year 1905: Jos. Wall, January; Franck Hyatt, February; J. W. Bovée, March; D. K. Shute, April; Sterling Ruffin, May; I. S. Stone, October; E. A. Balloch, November; J. Dudley Morgan, December.

A letter from the Columbia Heights Citizens Association in regard to the acquisition of land at the northwest corner of Four-

teenth Street and Columbia Road for the purpose of establishing a park at that point and asking the co-operation of the Medical Society of the District was read.

The Corresponding Secretary was requested to reply to the Chairman of the Park Commission that the communication had reached the Society too late to be acted on before the Christmas recess.

The President read his annual address. At its conclusion the Society expressed its appreciation by a rising vote of thanks. See P. 375.

The Society then adjourned *sine die* for the second session of 1904.

Editorial.

The Editorial Committee are pleased to say that the cost of publication of Volume III of the ANNALS will be about \$150.00 less than either of the preceding volumes. The exact figures will appear in the forthcoming report. Part of the reduction is due to an increase in receipts from advertisements.

We are requested to state that at the next meeting of the Medical and Surgical Society, February 2, 1905, Prof. Alfred Stengel, of the University of Pennsylvania, and Dr. D. L. Edsall, of Philadelphia, will read papers, after which a Smoker will be given.

RESOLUTIONS ON THE DEATH OF DR. JAMES CLARK BIRD.

DR. JAMES CLARK BIRD, one of the oldest members of this Society, died on the 5th day of December, 1904. He was born July 1st, 1828, and graduated from the Medical Department of the University of Pennsylvania in 1853. He had previously received the degree of A. B. from Delaware College in 1849 and the degree of A. M. from the same institution in 1852.

After a long life of devotion to his profession, and faithful performance of its arduous duties, he has been called to rest.

Resolved, That this Society hereby express its appreciation of his professional work, and its sincere regret that he is no longer with us.

Resolved, That we extend to his bereaved family our earnest condolence and sympathy, and that a copy of these resolutions be forwarded to them as an expression of the same.

A. F. A. KING,
JOSEPH TABER JOHNSON,
C. W. FRANZONI,

Committee.

Reported to and adopted by the Medical Society of the District of Columbia, December 14, 1904.

Medical Miscellany.

Freedmen's Hospital.—The committee to select plans for the new Freedmen's Hospital have chosen those submitted by Bruce Price and DeSibour, of New York. Over twenty-five architects competed. The new hospital will be a thoroughly modern, fire-proof structure, and is so planned as to be capable of extension to meet the increasing demands upon the institution.

EDWARD A. BALLOCH.

Diphtheria, &c.—HEALTH DEPARTMENT, DISTRICT OF COLUMBIA.—The following is a copy of the opinion of the Corporation Counsel as to what constitutes *diphtheria* under the law of the District :

December 20, 1904.

HON. COMMISSIONERS, DISTRICT OF COLUMBIA.

Gentlemen: I have duly considered the enclosed communication of the Health Officer inquiring if children in the public schools who are found to have diphtheria bacilli in their air passages have diphtheria within the meaning of the law passed for the prevention of the spread of that disease.

The law referred to is the Act of Congress entitled "An Act to Prevent the Spread of Scarlet Fever and Diphtheria in the District of Columbia," approved December 20, 1890.

Section 3 of said Act reads as follows :

"That no person shall visit or attend any public or private school, or place of public assemblage, or appear on the public streets or in the parks while *affected* with scarlet fever or diphtheria," &c.

The object of the Act unquestionably is to prevent the communication of the diseases mentioned from one person to another.

I am given to understand that diphtheria is communicated only by these bacilli, and that a person having bacilli in his throat or air passages can readily transmit the disease to another, notwithstanding the absence in such person of the bodily indispositions or clinical symptoms of the disease.

It will be observed that the provisions of the said Act of Congress are applicable to a person "affected" with diphtheria.

One having diphtheria bacilli in the air passages would seem to be "affected" with diphtheria within the ordinary meaning of that word as defined by the lexicographers, viz: "To have an effect upon; act upon; lay hold of; impress; influence."

I am of the opinion that a person having diphtheria bacilli in

his throat or air passages has diphtheria within the meaning of the said Act of Congress.

Very respectfully,

(Signed)

A. B. DUVAL, *Corporation Counsel*.

Approved December 21, 1904, Commissioners Macfarland and West.

Approved December 22, 1904, Commissioner Biddle.

W. C. WOODWARD.

Memorandum showing the relative prevalence of certain communicable diseases from November 1, to December 31, 1903, and the same period of 1904.

DIPHTHERIA.

1903.			1904.		
Cases on hand Nov. 1, 1903...	6		Cases on hand Nov. 1, 1904..	67	
Cases reported from Nov. 1, to Dec. 31, 1903.....	59		Cases reported from Nov. 1, to Dec. 31, 1904.....	182	
Cases discharged, recoveries,	41		Cases discharged, recoveries	186	
Cases discharged, deaths.....	7		Cases discharged, deaths.....	11	
* Per cent. of fatal cases.....	14.6		* Per cent. of fatal cases.....	5.6	
Cases on hand Dec. 31, 1903,	17		Cases on hand Dec. 31, 1904,	52	
Total cases.....	65	65	Total cases.....	249	249

SCARLET FEVER.

1903.			1904.		
Cases on hand Nov. 1, 1903...	13		Cases on hand Nov. 1, 1904..	38	
Cases reported from Nov. 1, to Dec. 31, 1903.....	68		Cases reported from Nov. 1, to Dec. 31, 1904.....	99	
Cases discharged, recoveries,	45		Cases discharged, recoveries	85	
Cases discharged, deaths.....	1		Cases discharged, deaths.....	0	
* Per cent. of fatal cases.....	2.1		* Per cent. of fatal cases.....	0	
Cases on hand Dec. 31, 1903,	35		Cases on hand Dec. 31, 1904,	52	
Total cases.....	81	81	Total cases.....	137	137

TYPHOID FEVER.

1903.			1904.		
Cases on hand Nov. 1, 1903...	153		Cases on hand Nov. 1, 1904..	225	
Cases reported from Nov. 1, to Dec. 31, 1903.....	142		Cases reported from Nov. 1, to Dec. 31, 1904.....	146	
Cases discharged, recoveries,	201		Cases discharged, recoveries	165	
Cases discharged, deaths.....	23		Cases discharged, deaths.....	10	
* Per cent. of fatal cases.....	10.2		* Per cent. of fatal cases.....	5.7	
Cases on hand Dec. 31, 1903,	71		Cases on hand Dec. 31, 1904,	196	
Total cases.....	295	295	Total cases.....	371	371

* The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.

SMALLPOX.

1903.			1904.		
Cases on hand Nov. 1, 1903..	4		Cases on hand Nov. 1, 1904..	0	
Cases reported from Nov. 1, to Dec. 31, 1903.....	6		Cases reported from Nov. 1, to Dec. 31, 1904.....	2	
Cases discharged, recoveries,	6		Cases discharged, recoveries	1	
Cases discharged, deaths.....	0		Cases discharged, deaths.....	0	
* Per cent. of fatal cases.....	0		* Per cent. of fatal cases.....	0	
Cases on hand Dec. 31, 1903,	4		Cases on hand Dec. 31, 1904,	1	
Total cases.....	10	10	Total cases.....	2	2

* The percentage of fatal cases is based upon the total number of cases which have definitely ended either in recovery or death, and not upon the number of cases reported or the number of cases which have been under treatment.



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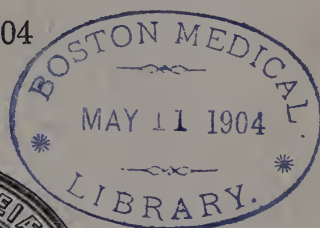
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Journal of the Medical Society of the
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MARCH, 1904



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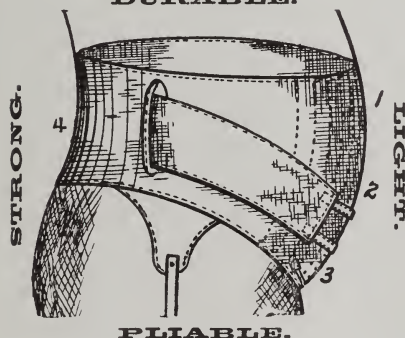
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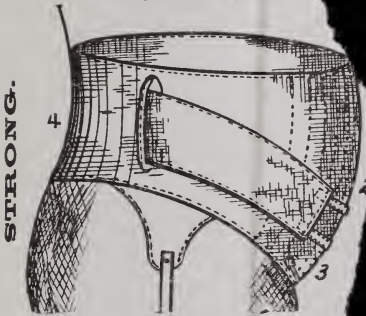
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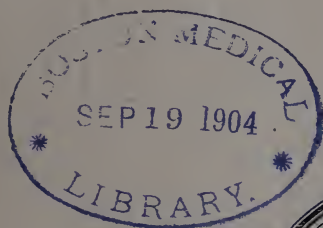
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JULY, 1904



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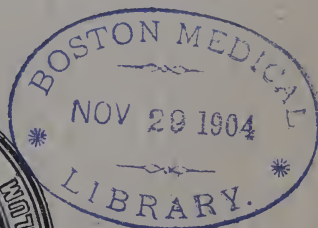
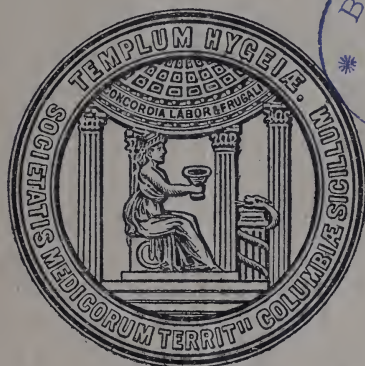
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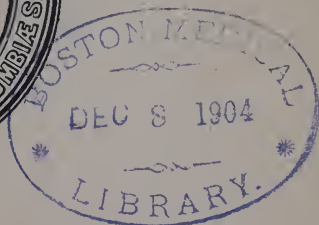
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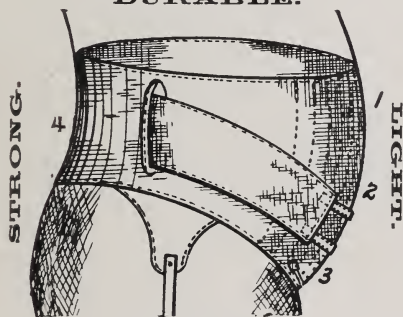
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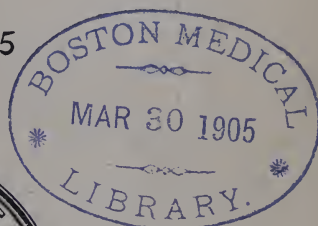
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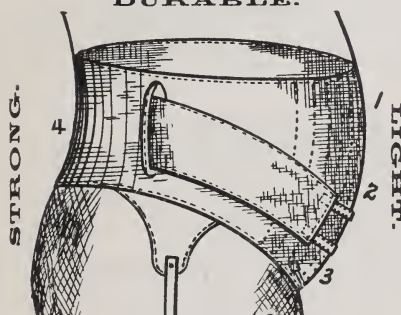
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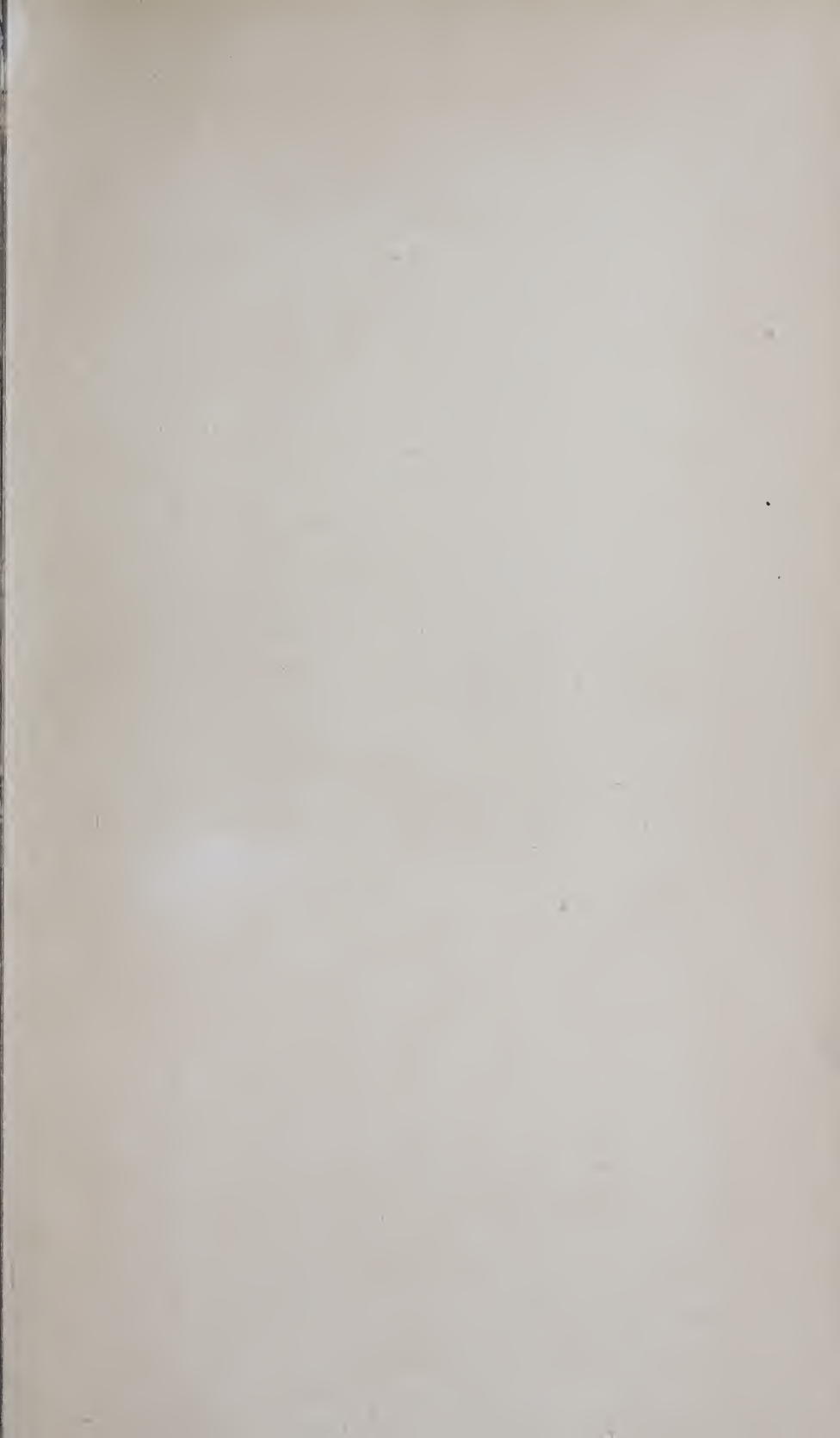
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